THE MEDICAL JOURNAL AND EXAMINER.

VOL. LV. DECEMBER, 1887. No. 6.

TETANUS.

BY L. L. McARTHUR, M. D.

READ BEFORE THE CHICAGO MEDICAL SOCIETY, ON DECEMBER 5TH.

In presenting the following paper to this society, the intention has been rather to provoke renewed discussion upon an important subject already oft gone over, than with the hope of presenting any very original work. If by so doing new ideas with new experiences are added to our meager fund of information, concerning the causation and treatment of this rare and fatal disease, as well as the clearing away of any inherited cobwebs bequeathed by our medical ancestors, the work will not have been in vain.

Before entering upon the discussion of the subject proper, let me state that those diseases to which the term tetanus is applied, as a complication or phase, such as puerperal tetanus, tetanus neonatorum, tetanilla, etc., will not be included under the caption of this paper, inasmuch as more or less satisfactory explanations of their etiology, pathology and treatment are extant.

It is defined as "a disease characterized by permanent and painful contractions of the voluntary muscles, wholly or in part, habitually beginning in those of the neck and inferior maxilla, and extending thence to others."

Nicaise makes the best subdivision of the disease, viz:

1 Acute.

2 Sub-acute.

3 Chronic.

While others, intending to hint at the etiology, add to the above—

Tetanus e frigore (from cold).

Tetanus traumaticum.

Tetanus spontaneous, further modifying these by adding special terms for the special groups of muscles involved, as *trismus* for the jaw, *opisthotonos*, for the extensors of the trunk, *emprosthotonos*, for the flexors of the trunk, or for the special character of the contractions which may be (1) continuous, (2) intermittent.

ETIOLOGY.

When more unanimity exists as to the causation of this disease more rational therapeutics as well as satisfactory results can be expected; and I trust that a reflection of the opinions to-day current with recognized authorities may indicate a step in advance to us through the labyrinth of suggested causes.

This much is so well known as to be *almost* axiomatic, that every case of tetanus has, *as a primary factor*, a trau-

matism, be that traumatism so small as the prick of an hypodermic needle or so extensive as the crushing of a limb, so slight as a burn upon the forearm, or so extensive as the contusion *without laceration* of the buttocks incident to a fall from a horse's back. Is it strange, then, that the primary traumatism is often overlooked? Would not many a "*spontaneous* tetanus" change its name to "traumatic," had the physician had emphasized for him the fact that in this disease, as in hydrophobia, to which it bears a strong analogy, the primary, and, may I say infecting, wound has often long since healed ere the dreaded symptoms make their appearance.

Race proclivities are mentioned as a factor predisposing the blacks to more frequent attacks than whites; while the countless other causes advanced, if considered in the light of the recent progress in bacteriology, serve but to explain the introduction of the materies morbi, virus, germ—call it what you will—which constitutes the *second factor* in the etiology of tetanus.

Then becomes clear the predisposition which *occupation*, as hostler, stable-boy and gardener induces, since these are affected more frequently than any others.

Climates. Where sudden alternations between heat and cold, with moisture, occur, thus favoring the growth of vegetable matter, the disease is more frequent, even in epidemics among the lower animals, as often occurs in India. The depressing influence of *wet and cold* on the wounded was clearly shown upon the battle-field of Botzen. Verneuil claims, and the mass of evidence now collected certainly tends that way, that tetanus is *always* an infectious, never a spontaneous, malady — sustaining his claims by pointing out the frequency with which hostlers, who deal with the animal most often attacked, acquire the disease; the frequency with which the history of tetanus in the groom is preceded by the same in his horse. This is sustained in two ways: First—*Clinically.* Well-authenticated cases distinctly traceable to wounds received while treating tetanic horses, the case of the late Dr. Wing, a veterinary surgeon of New York, being one in point. While making a post-mortem on the cadaver of a horse which had died of tetanus, he accidently scratched his hand, acquired the disease and died. Secondly—*Experimentally.* By the investigations of Rosenbach, who, while studying the hygienic influences of garden soil, eliminated and cultivated therefrom a microörganism which, when introduced beneath the skin of the lower animals — except the dog, which is exempt therefrom—invariably induced tetanus, even through any number of cultures. Small masses of muscular tissue, carefully excised from a case of tetanus and introduced into the subcutaneous tissue of lower animals, promptly induced the characteristic phenomena.

Clinically, again, this receives great support when one considers the disproportion of tetanus occurring in wounds of upper and lower extremities, as reported in the Surgical History of our late war.

In 16,000 foot-injuries 57 cases of tetanus ensued.

In 12,000 hand-injuries not a single case was reported.

Here the possibility for wound-infection of the foot was much greater from the soil than in the case of the hand. If further evidence were wanting to prove that there must be a specific element, it may be supplied by the cases, reported by Betoli, of three slaves, who, although specially cautioned not to eat of the flesh

of a horse dead of tetanus, did eat of it, and all contracted the disease, and all died of it.

To test the truth of Rosenbach's statements, both Flügge and Nicolaies repeated his experiments with positive results.

Then Socin, of Basle, made the direct test by introducing garden soil subcutaneously, with the result of inducing tetanus.

Before leaving the subject of etiology mention ought to be made of the theory of E. Rose, that tetanus is due to an ascending neuritis. This seems to be true as revealed by post-mortem examination in some cases; but what advance have we then made—for something must cause the inflammation?

This induces the reflection that just as the germ of hospital gangrene would spare the muscles, but dissect away their sheaths and connective tissue, so that of tetanus may have a predilection for nerve tissue, and thus explain the neuritis.

Gautier, who has advanced toxicology so much by his investigations of cadaveric alkaloids, leucomaines and ptomaines, furnishes by far the most acceptable explanation of the phenomena of tetanus-poisoning, by having extracted from the fluids in which various germs have grown alkaloidal bodies of fixed chemical and physiological properties, but differing for each microörganism. Thus the micrococcus of septicæmia invariably produces an alkaloid named septicine of definite chemical properties, which can be extracted by the usual methods for obtaining alkaloids, and which, when introduced into the circulation, produces temporarily all the phenomena of septicæmia, ephemeral fever; so, too, from the culture-fluid of bacillus tuberculosis an alkaloid can be obtained producing temporary hectic, followed by by sweating, etc. One of these alkaloids, extracted by Gautier reacts upon the organism like the strychnia group, and induces tetanic convulsions identical with those of tetanus.

DIAGNOSIS.

In regard to the differential diagnosis between tetanus and allied diseases, some points will bear reference here, though to cover the entire ground might seem a work of supererorgation.

Reëmphasizing Rosenthal's remark, "*Many cases* have been reported as tetanus which were merely *varieties* of *tonic spasms*, affecting the trunk and limbs. In all these the characteristic sign of morbid increase of reflex action has been lost sight of," I would say that special care should be used to differentiate this disease from hydrophobia, hysterical tetanus, the masticatory spasm of Romberg, and certain tonic spasms resulting from obscure meningeal inflammations of the base of the brain. In *hydrophobia* the history, combined with the usual six weeks' period of incubation, whilst that of tetanus generally being within twelve days, will usually suffice to differentiate; but without these, cases so closely simulate it that, as before mentioned, the French school have made a special class for such "tetanus hydrophobica." Some of the early-developing, alleged, cases of hydrophobia may have been simple traumatic tetanus, the history of a bite having misled the diagnostician. In hydrophobia there is usually periodic unconsciousness, alternating with delirium, while in tetanus the mind remains clear to the last.

Hystero-tetanus of a marked character can usually be differentiated by the thermometer; it is of a quick and benign course.

Romberg has called attention to a

spasm of the masticators supplied by motor branches of the trigeminus as a result of cerebral softening, cerebritis, and circumscribed meningitis. This, if superficially observed, might be considered as a localized tetanus, called trismus. Tetanic conditions, it is to be remembered, complicate many acute diseases; but their individual peculiarities here point to the true diagnosis.*

The acute form might justly be called tetanus fulminans, so sudden and severe is its onset and course. Three days of high temperature, severe convulsions, terminating always fatally at the end of the fourth day with spasm of the larynx, or heart-failure, possibly from remedial agents employed. Spasms yield only to chloroform or ether.

In *the subacute* form, the symptoms are slower in appearing and not so severe in their character, with fifty per centum of recoveries, having an average duration of twelve days, while in the *chronic form* we have no abnormal temperature, the spasms are slight, and terminate favorably in thirty to sixty days. In fact, the fatality of tetanus is in direct ratio to the acuteness of the attack, as Dr. Moses Gunn has stated.

Further subdivisions have recently been added to the usual classes, of which *Kopftetanus* of the Germans is applied to a tetanic spasm of the muscles of the jaw and face, in which the spasm of the muscles on one side the face being greater than on opposite side, causes the same distortion that accompanies facial paralysis. This variety is very insidious in its onset as well as always fatal.

Again, we have the tetanus hydrophobica of the French school; in that variety the spasms affect the muscles of the pharynx and larynx largely. It is of the greatest importance to the patient that the diagnosis be made early, because incipient cases yield more readily than than those well advanced.

As the knowledge of nervous diseases becomes better, I venture to predict that two or even three diseases possessing many of the characteristics of tetanus and each other, will be differentiated from the general class tetanus into sub-classes of their own, and found to be due to other causes.

DIFFERENTIAL DIAGNOSIS.

Three to five per centum of all cases are of the partial character.

In lieu of the clinical history and course of the the disease, let me give briefly the history of one of my cases:

James Cash, aged 31, a switchman by occupation, of good physique and general health, was brought to St. Luke's Hospital for a crushing injury of the foot, received on Illinois Central railroad, on September 26, 1887. While coupling cars in motion and walking backward between them, his foot caught in a frog. With difficulty he pulled off his boot and threw himself to one side, but received a crushing injury by a flange of a wheel which ran obliquely across the heel, and crushed the posterior half of the os calcis. On reaching the hospital the wound, which was full of dirt, was washed, irrigated and dressed antiseptically. During the night he had a slight hæmorrhage, for which a bandage was applied. He admitted having been drinking; otherwise his general conditions had always been excellent. There was no history of any nervous diseases in his family.

Careful microscopical examination was made of numerous sections of the sciatic,

*Due acknowledgments are here made to Nicaise's article in Ashurst "System of Surgery;" *Medical Record*, *Progres Medicale and Wiener Med. Wochenschrift.*

removed under antiseptic precautions, but nothing could be found there of a bacterial character. A post-mortem examination not being permitted, it was impossible to obtain the tissues situate near the wound; so the result, while negative, was not of much weight. Punctate hæmorrhages, with infiltration of the connective tissue sheaths by leucocytes, were noticed.

Nothing of special interest occurred from September 26th, the date of his admission, outside the usual surgical dressing, which had been more or less painful, and the temperature ranging between 100° F. 103.5° for which quinine was given. Nothing more occurred than was to be expected with the wound, until October 9th, when the bowels, having been somewhat constipated —a prodromal symptom—a cathartic of ol. Ricini was ordered at night for him. October 10th, at 4 P. M., he began to complain of pain between his shoulders, and his hands and arms were twitching slightly. Ordered Bromidia ʒss. every three hours, p. r. n. His diet was milk, egg-nogg, light food. 11th, A.M. Slept little during the night. The pain between the shoulders continued, and his face was drawn at the angles of his mouth. P. M. Slight opisthatonos, and I increased the Brom. to ʒi. every three hours. October 12th Risus Sardonicus was marked, but says he feels good; look of contentment on face; trismus requires stick between *teeth* to avoid gritting *them;* says he is *much better*, Bromide ʒss. *every two hours.* 13th; some difficulty in swallowing showing itself. Dress foot myself. Give ether, and open up the entire sole of foot. Wash out with 95 per cent. Found sphacelus of connective tissue. Bromide ʒi, chloral gr. 10, every two hours. 14th, worse; every symptom worse; chloroform during the night; stretch sciatic; Physostigmatis, gr. ⅛ every hour.

15th, spasms were quieted by operations; they returned at 6 P. M., and during night were very bad. Chloroform 3 times during night. Respiration greatly interferred with. Death on 16th, A. M. No post-mortem permitted.

Treatment.—As the result of my investigations of the history of the cases collected between 1882 and 1887, nervous sedatives seem to yield the best results when combined with the most absolute quiet and rest. Gross says in forty years' practice he had seen but three cases recover—then only after a protracted struggle, bromides and opium being the main-stay.

Physician.	Cases.	Recv'y	Death.	Treatment.
Cheesman	1	1		Whisky to intoxication.
Acentz	1	1		Venesection, Morph. ⅝ cent, hypoderm. rec.
Alderson	3	3		Bromide and chlor. aa., 25 grs., 2 hours.
Gunn	3	2	1	Physostigma Nerve stretching.
Stair	2	1	1	Heroic chloral and bromide.
Verneuil	7	5	2	Chloral & brom. Quiet and rest. 1 sudden death.
Jackman	1	1		Urethran; after failure, chloral.
Mayer	1	1		Chloral and bromide.
Brown	1	1		Quin., enormous doses; 100 grains every hour.
Beck	36	21	15	Chloral.
Wood	13	11	2	Br. Pot.
Kolipinski	1	1		Recovery; chloral.
R. H. McCord	3	2	1	Chloral.
McArthur	4	3	1	Nerve stretching in 1. Calabar bean in other.
Total	77	54	23	1 Imbecile.

A glance at the foregoing table will show that as yet our main reliance must be on

the symptomatic treatment, using as nervous sedatives those best known to us as such. The most absolute quiet is essential, with protection from all external sources of irritation, such as noises or sudden draughts.

REPORT OF A CASE OF NEPHROLITHOTOMY.*

BY W. T. BELFIELD, M. D.,

SURGEON TO THE COOK COUNTY AND THE MAURICE PORTER HOSPITALS.

James F——, thirty-seven years old, gives the following history: Some fifteen years ago he suffered for several months from great irritability of the bladder, urinating very frequently and with considerable pain. On several occasions he passed blood. He was treated at that time for "cystitis." These symptoms gradually disappeared. At intervals thereafter he suffered from dull pain in the loins, often extending upward to the chest, and sometimes incapacitating him for work. For the past two years pus had been seen in the urine, constantly, in varying quantity. At times the amount would be small for a few days, during which time the pain in the side became severe; then a large quantity of pus would be discharged while the pain diminished. After treatment for various complaints he came, about a year ago, under the care of Dr. Frank Billings, who discovered an increased area of dullness over the left kidney, and at times a distinct though slight swelling in the loin. Recognizing that the left kidney was the seat of suppuration, Dr. Billings endeavored to ascertain the cause thereof. Tuberculosis was almost certainly excluded by repeated examinations of the pus for the characteristic bacilli, with negative result. As renal calculus seemed the most probable diagnosis, Dr. Billings referred the patient to me for operation. After thorough examination and observation this seemed to me also the most plausible diagnosis, though many of the acute symptoms of calculus did not then exist. The right kidney could be felt through the abdominal walls and seemed normal; yet, previous to the operation, I endeavored to demonstrate its integrity by closing the ureter of the one under suspicion, by means of Silbemann's catheter. The instrument caused so much pain, however, that the result was unsatisfactory. June 26, last, in the presence of Drs. Billings, Hosmer and Tilley, I explored the left kidney through an oblique lumbar incision. The organ was found to be enlarged and flabby. Upon incising the cortex an explanation of this condition was found in a slight hydro-nephrosis. The cause of the hydro-nephrosis was found in a calculus of conical shape, some two inches in length, its smaller end impacted in the ureter so tightly as to require some force for its extraction. A few loose flakes were afterwards removed from the pelvis and ureter. Recovery ensued without notable event. On the 14th day the patient visited his place of business; in two months his weight increased from 105 to 123 pounds, and all morbid symptoms had disappeared, except that some pus was still present in the urine; this

* Reported to the Chicago Medical Society, November 21, 1887.

has now become so slight in amount as to be discoverable only with the microscope. Presumably the shriveling of the distended kidney is about accomplished. The stone is an oxalate or mulberry calculus, and weighed 244 grains.

REPORT OF A CASE OF CANCER OF THE PROSTATE.

ALSO, BY W. T. BELFIELD, M. D.

Hans J——, aged forty-eight years, was admitted to the Cook County Hospital, suffering from unduly frequent and somewhat painful urination, symptoms which had existed for some three months. On two occasions blood had been observed in the urine. Examination *per rectum* showed a slightly enlarged though symmetrical prostate, along the center of which, instead of the normal depression, was a slight protuberance. By the microscope we found in the urine a few blood corpuscles. A tumor of the prostate, either papillomatous or malignant, was diagnosed; the latter seemed more probable, because the quantity of blood in the urine was altogether too slight for the benignant variety. Efforts to entangle and bring away shreds of the supposed growth in the eye of a metallic catheter, failed. May 7th, the bladder was explored by supra-pubic incision, and a malignant villous growth was found growing from the left side of the prostate, the villi projecting an inch or more into the bladder. These were removed with forceps and spoon and the base cauterized. Recovery ensued without notable event, and for eight weeks the urinary function seemed almost normal; then the former symptoms began again and steadily increased in severity. The growth finally entirely filled the bladder and involved the abdominal wall, producing a small fistulous opening, and constituting a tumor which could be plainly outlined above the symphisis pubis and through the rectum, apparently filling the pelvis. Death occurred October 8th. Only the glands in the immediate vicinity of the bladder were found to be carcinomatous, and no secondary growths in other organs were discovered. The kidneys contained numerous miliary abscesses, a condition often consequent upon chronic cystitis.

EDITORIAL.

NOVELTY AND PRIORITY IN MEDICINE.

The desire to discover and to present to the profession some novelty, and to secure credit for priority in its introduction, seems not to have abated in the last few years, if one may judge of it by recent observation. This fondness for what some call *enterprise* is not confined to the commercial world, for we see around us many evidences that the medical profession is not exempt from it. The odor of sulphureted hydrogen has scarcely left either patient or physician, since the recent explosion of the so-called *Bergeon's Method* of treatment of phthisis, before an equally unfounded claim seems to have been put forth for a rival for cocaine, which was represented as possessing greater anæsthetic and mydriatic properties than cocaine or atropine. Regarding this new local anæsthetic, known as Gleditschine or Stenocarpine, we are now informed that careful analysis has been made of a specimen of this new alkaloid, "which is derived from *Gleditschia Triacanthos*," and that the result has been that it "contains 6 per cent. of cocaine, and a sulphate of a salt, which further experiment is likely to prove to be Atropia." Also, that after careful experiment with the leaves of *Gleditschia Triacanthos* it was found "that they contain only an infinitesimal percentage of an amorphous alkaloid, devoid of anæsthetic or mydriatic properties."

Mr. F. A. Thompson, who conducted these experiments in the laboratory of Messrs. Parke, Davis & Company, at Detroit, says: "In the light of these facts it seems probable that the Stenocarpine sensation should be classed with the Hopeine fraud of malodorous memory, and that the physicians who have already published reports regarding Gleditschine, or Stenocarpine, have been the victims of a clever hoax."

Thus is afforded further evidence of the desirability of trusting to tried remedies that have stood the test of time—the most reliable of all tests.

If, as a result of these unfounded claims, more caution shall result in accepting the assurances given, without fair trial or reliable data, regarding every alleged novelty introduced into medicine, and lead to better use of the remedies, whose value time and experience have demonstrated, instead of seeking somthing new or unusual for the sake of novelty, these deceptions, like their predecessors, will not have failed to contribute to a good end.

THE OCTOBER QUARTERLY MEETING OF THE ILLINOIS STATE BOARD OF HEALTH, AND OUR SEABOARD QUARANTINE.

A condensed report of the last meeting of the State Board of Health will be found in another department of this number of the JOURNAL AND EXAMINER. The secretary of the Board has been active in investigating the quarantine stations at the Atlantic seaboard, and in urging their improvement;

but if the report, on October 27th, of the special committee appointed by the College of Physicians and Surgeons of New York, to investigate the condition of the quarantine at New York, Philadelphia and Baltimore is correct, he seems to have given more credit to the health authorities of the port of New York than is due them, in his statement that all proper and efficient methods were employed in the case of the steamer Alesia.

The following statements are taken from a leading article in the *Therapeutic Gazette* for November 15th: According to the personal investigation of the committee mentioned, there are no proper provisions at the ports named to prevent the ingress of Asiatic cholera. At New York, the treatment of the passengers of the steamers Alesia and Britannia was as follows:

"Hundreds of men and women, some infected, others not, were for several days crowded together in a single large room. They had at first no bedding at all, and when bedding was received it was simply thrown upon the floor, and during the day piled up in heaps, no care being exercised to see that the same individual had the same blankets on successive nights. There were no proper latrines, no proper protection of the water-supply from infection, and the system of disinfection was so bad that for several days the unfortunate people had no access to any clothes save those on their backs. There was no isolation of the groups of passengers, and no attempt at separation of the possibly infected from the well. There was no medical attendance upon the island during the night. Any person taken with cholera at such a time had to remain without assistance, among the well persons, until the visit of the health officer the next day. Even in the hospital upon an adjacent island, with its ill and dying patients, there was no resident physician, and therefore no proper surveillance of the patients, who apparently, were visited only once in twenty-four hours.

"In the second place, the police supervision was so faulty as practically scarcely to exist, and there can be no doubt that boats passed freely between the infected island and the shore."

This deplorable and dangerous condition of quarantine affairs seems to be due primarily, to an alleged lack of funds, and secondarily to the fact that the quarantine office is a main reliance of one of the political parties of the state of New York for money for campaign expenses. The annual receipts of the office are estimated at from sixty to one hundred thousand dollars. Of this sum, ten thousand is paid to the medical health-officer; seventeen thousand for expenses of the office; and the balance *disappears*. The writer of the article quoted very properly contends that the whole matter of quarantine along the coast is one of general national interest and importance, and that it should be removed from local control, and placed in the hands of the general government.

This subject ought to engage the earnest and active interest of all medical men, since no other class in the community can be considered to be so eminently the guardians of the public health.

ABSTRACTS AND EXTRACTS.

DIPHTHERIA OF THE EAR.

BY ROBERT BARCLAY, M. D.

[A paper read before the St. Louis Medical Society.]

The subject of diphtheria, which has of late been receiving your earnest attention, and which as a throat disease has, in a recent address, been so ably discussed, deserves a broader consideration by you as general practitioners of medicine.

Dr. H. C. Moir, in his "Manual of the Practice of Medicine," which is a careful rèsumè of the standard works of Niemeyer, Roberts, Loomis, DaCosta, Bristow, Hartshorn, and others, says: "It can not be well denied that it [diphtheria] is, first, a constitutional, and, secondly, a local disease; for it seems proven there is a local manifestation of a constitutional development by the fact that the disease can not be destroyed by taking off the various layers of the mucous membrane. It is unquestionably a constitutional disease, and the local changes depend entirely upon the amount of infection."

Intelligent treatment will depend mainly upon a correct determination of the mooted question, whether diphtheria is a constitutional disease primarily, and local secondarily, or *vice versa*. This solution will prove less difficult by making a broader study of diphtheria than is possible in the literature and observation of diphtheria of the pharyngo-larynx alone.

In searching broadly I find numerous reports of diphtheria affecting the genital organs, the eye, wounds, etc. Since the careful study of diphtheria of the eye which was made in 1884 by Dr. A. von Graefe, ophthalmologists have made further observations, numerous and careful. The frequent invasion of the organ of hearing by diphtheria has long since attracted the attention of otologists; to them the destructive features of this disease upon the ear are familiar, being seen so frequently in neglected aural cases which have been prematurely pronounced "cured" of their diphtheria.

In the excellent recent address upon the "local"—*i. e.*, the faucal and nasal—treatment of diphtheria, owing to its author's having been unfortunately misled in his search for the literature of diphtheria of the ear, the opinion was hazarded that the ear was but rarely attacked by this disease. Lest this should mislead you into carelessness in noting the condition of the organ of hearing, and, through ignorance of the truth, into neglect to protect from invasion of these parts the patients of diphtheria who may now or hereafter be under your professional care, you are here offered a statement of the facts, together with a brief rèsumè of the American and European literature concerning diphtheria of the ear, so far as I have found time and opportunity to consult it.

Passing over the cases which in the recent address are said to have been reported by Urbantschitsch, I give you the following:

Dr. S. Moos publishes a full history of a case of idiopathic diphtheria of the

external auditory meatus. As this case is so often referred to by writers on the subject before us, and as it is so typical, I append an abstract of that history, as follows:

A boy ten years old had been twice under treatment by Dr. Moos for purulent otitis media of the left side—first, from July 24 till November 20, 1864, when he was discharged cured and with the perforation closed; and, secondly, after an attack of measles, from January 29 till March 19, 1865, when he was discharged cured of otorrhœa, but with persistent perforation. On August 18th he returned to Dr. Moos, *having suffered intense, constant and increasing earache for thirty-six hours preceding, with fever, loss of appetite, excessive thirst, and, during the second night, delirium.* Deglutition was easy, but mastication impossible because of its painfulness; patient pale and exhausted; pulse weak and 108 to the minute; furred tongue, and *the palate, tonsils, etc., were clean;* traction on auricle, and pressure on tragus painful; glands near by swollen and tender; inner surface of concha bright red; posterior surface of tragus, regio intertragica, and whole surface about outer end of meatus—whose inner portion could not be examined because of contraction—was covered with what is described as "a rather thick, inflexible, lardaceous, greasy coating," which could not be raised from the underlying structure; attempted separation resulted in only lacerating the parts matted together, with bleeding, and gave the patient intense pain; there was almost deafness on the affected side, except by bone-conduction; and *though the ear emitted a very offensive odor, there was no positive otorrhœa.*

Treatment consists in daily penciling with solution of nitrate of silver (gr. xv. to unc. j.) and frequently washing the parts with warm water. Cold applications of Goulard's solution (1 to 3), to relieve pain, with good effect. Mastication being painful, fluid food and broths only were given. Local phlebitis was contra-indicated by the poorly nourished condition of the patient. There was still fever, loss of appetite, and great restlessness at night.

August 26th and 27th, insomnia at night. On August 27th, coating about the tragus and entrance to the meatus began to peel off, accompanied by slight suppuration and considerable hæmorrhage.

August 29th, exfoliation began in meatus, accompanied by increased hæmorrhage. Syringing produced considerable hæmorrhage, and for the first time there was a decrease of the pain.

September 2d and 3d, repeated hæmorrhage; no pain. On September 3d, no fever, increased appetite; hearing distance for watch, $\frac{2}{3}$; for voice, eight paces; slight tenderness of ear on traction or pressure. Spots on outside of tragus, etc., described above, now show a sharply marked edge, with slightly granulating and suppurating surface; external meatus presented same appearance; swelling decreased, and, after syringing, speculum was easily introduced, through which old perforation of drumhead was plainly recognized; the drumhead itself was seen to be covered with grayish-red pus, but itself not clearly made out. Improvement followed in external meatus, but a relapse of the otitis media prolonged treatment until October 22d, when patient was discharged cured of his disease, but with a persistent perforation, as before.

Dr. Moos states that "Wreden has observed five cases of diphtheria of the external ear, and in those most carefully noted the membrana tympana was implicated."

Dr. Adam Politzer writes of croupous otitis externa as a rare form of disease of the external meatus, and refers to cases reported by Dr. William R. Wilde; also to a case reported by Dr. Gottstein, of croupous exudation of the tonsils and posterior wall of the osseous auditory meatus.

Dr. Bezold reports eleven cases of this affection met with in three years.

Dr. Politzer says that otitis externa diphtheritica is seldom primary, but it is usually a complication of scarlatinal diphtheria of the throat and middle ear. But primary diphtheria of the meatus has been observed and reported by Drs. Moos, Bezold, Wreden, Callan, and Kraussold, which developed during an epidemic of diphtheria, but upon a previously existing otitis externa or excoriated condition of the meatus.

Dr. Blau mentions the necrosis and shedding of the membrane, and reports a case of diphtheria of the external and middle ear simultaneously.

Dr. Jacobson reports three cases of diphtheria of the canal observed at Dr. Lucae's clinic.

Dr. Bezold reports three cases.

Dr. Abraham Jacobi reports two cases of diphtheria of the external ear, one of which had (the other had not) been the seat of what he calls "catarrhal" inflammation. He cites a case of primary diphtheria of the external auditory canal, reported by Wreden, and refers also to several other cases already reported above.

Dr. Charles H. Burnett reports a case where, in a "child sixteen months old, without any previous symptoms of pain or acute inflammation in the ear, a large, cold abscess formed behind the auricle, pus ran from the meatus, the abcscess was opened by the family's medical adviser, and denuded bone was found extending along the posterior wall of the mastoid portion." This was part of the diphtheritic disease from which the child was at the time suffering.

I give here titles of two articles upon this subject, of which I could not at present obtain a copy or abstract:

Dr. G. Cerrutti: Otite externa pseudo-membranosa.

Dr. J. Boke: Kroupose Entzündung des aussern Gehororganes, etc.

The primary form of diphtheritic otitis externa, if properly treated, is not apt to be widely destructive. It is characterized by its painfulness, and the production of the diphtheritic membrane.

On the contrary, the secondary form, or one following diphtheria of the fauces and middle ear, is very apt to be widely destructive, ofttimes being attended by great necrosis. It is characterized by its comparative painlessness and rapid transition into the chronic state.

Treatment, constitutional and local, must be supporting, antiphlogistic, antiseptic, and cleansing, modified and adapted to the individual case under attention.

Diphtheria of the middle ear, and middle ear tract, is by far more frequent than one would reasonably expect from the number of so-called "cures" of diphtheria. Of the disease in this region, Dr. Adam Politzer says that the occurrence has been established by the reported observations of Drs. Wendt, Wreden, Moos, Bezold, Kupper, Burkhardt-Merian, Gottstein, Blair and others. The primary form of diphtheria of the middle ear is supposed to have been demonstrated in two cases only, which have been reported by Dr. Burkhardt-Merian.

Post-mortems show the extension of diphtheria from the naso-pharynx to the tympanum.

Dr. Wendt, in his cases of naso-pharyngeal diphtheria, reports that 40 per cent. had the same process in the tympanum.

Dr. Wreden reports eighteen cases of the same.

In his discussion of the etiology of acute purulent otitis media, Dr. A. Politzer speaks of diphtheria as a cause, and says: "A consecutive otitis media takes place very often in scarlatinal naso-pharyngeal diphtheritis, as I have been informed by Viennese surgeons in most extensive practice among children."

Again, in discussing the etiology of chronic purulent otitis media, he says: "The suppurations of the middle ear,

however, which most frequently become chronic, are those which arise in the course of typhus or the acute exanthemata, and the scarlatinal and diphtheritic forms are specially characterized by their obstinate course, which frequently defies all treatment."

Dr. D. B. St. John Roosa mentions the fact that diphtheria plays an important part among the factors of acute aural disease, and says that the suppurative forms is the one usually recognized.

Dr. Albert H. Buck reports a case of apparent diphtheritic inflammation of the middle ear.

Dr. J. C. Mulhall reports a case of invasion of the tympanum by diphtheria of the naso-pharynx.

In a report of over two thousand consecutive cases of ear diseases treated by our division of the Aural Staff of the New York Eye and Ear Infirmary, to which is appended a working schedule —a nomenclature and classification of diseases of the ear, you will find mentioned croupous inflammation of the external auditory canal, croupous and diphtheritic otitis media, diphtheria as a complication of disease of the middle ear tract, croupous and diphtheritic inflammation of the Eustachian tube, complicated with this the disease in the naso-pharynx, and paresis of the muscles of the Eustachian tube.

Drs. A. Jacobi, A. Politzer, C. H. Burnett, and others too numerous to mention, emphasize the frequent invasion of the middle ear by naso-pharyngeal diphtheria.

References might be multiplied if the occasion permitted, or necessity demanded; but these will suffice to place you upon your guard while attending cases of diphtheria.

Let me sum up by reminding you that aural invasion by diphtheria is very insidious,usually comparatively painless, showing a marked tendency uniformly to assume the chronic form, and apt to produce very rapid and wide-spread destruction, with necrosis, and burrowing to neighboring parts. Among its probable effects may be expected one of the following: fetid discharges, often persistent, always annoying and disgusting, deafness, erosion of the Eustachian tube, mastoid perforation, necrosis, partial or facial paralysis (Bell's Palsy), meningitis, thrombosis, embolism, phlebitis, pyæmia, cerebral abscess and death. These dangers, in view of the insidious development of aural diphtheria, should lead you to examine the ear early and frequently in every case of diphtheria which comes under your supervision. Should you find an inflamed and bulging drumhead, even if the patient make no complaint of aural discomfort or pain, it is your duty to make an incision of the drumhead —not a "pinhole," but an opening — sufficient to permit the escape of the products of inflammation, removing them by artificial means, if necessary, to check the burrowing to neighboring regions.

Let the practice of syringing the fauces and nares—which you have heard vigorously recommended for cases of diphtheria with prominent naso - pharyngeal manifestations — be prudent and careful, lest you force materies morbi within the Eustachian tube or into the middle ear. Whatever or wherever the local phenomena, pay close attention to the constitutional condition; treat your *patient;* and in modifying and adapting local measures for management of an aural development of diphtheria, let free drainage, cleanliness and antisepsis be your aim.

In closing, I recommend to you personal consultation of the literature of otology on the subject of diphtheria, so that you may further familiarize yourselves with the facts, and, having done so, act the more confidently and intelligently for the protection of your helpless but trustful patients.— *Weekly Medical Review.*

OXYGEN ENEMATA.

By J. H. Kellogg, M. D., Battle Creek, Mich.

Some weeks ago, while employing the carbon-dioxide and sulphuretted hydrogen enemata, it occurred to me that oxygen gas might be employed advantageously in the same manner. Having at that time under treatment a case of lithiasis, I resolved to make a trial of the administration of oxygen by enema, in the hope that by the introduction of oxygen directly into the portal circulation the conversion of uric acid into urea might be aided, and my patient thereby relieved. I was at first deterred from the attempt by the supposition that oxygen would probably give pain, as it has been claimed that the pain sometimes occasioned in the employment of sulphuretted hydrogen by the Bergeon method is produced by the accidental injection of small quantities of atmospheric air. I determined, however, to try the experiment, and made the first injection of two litres of pure oxygen gas on June 20th. At this time the patient, a man of twenty-eight years, was passing very great quantities of uric acid daily, a large quantity of crystals being thrown down from every specimen of urine passed. The symptom had persisted most stubbornly for weeks, in spite of the enforcement of a non-nitrogenous diet, the patient also taking, by direction, from three to five pints of hot water daily. The beneficial effect of either regimen or treatment was so slight as to be scarcely perceptible. Two litres of oxygen were administered regularly each day, about 10 A. M. At the end of three days the excess of uric acid disappeared entirely from the urine, and has appeared only twice since, and then in small quantity, when the injection had been discontinued for a day or two. At the beginning of treatment the patient's skin was very muddy, sclerotics dingy, tongue coated, and he complained of a constant and very annoying brassy taste in the mouth, and distressing headache. The brassy taste and headache both disappeared very soon after the injections were begun, and there has been a steady improvement in every other particular. The coat has disappeared from the tongue, the skin and sclerotics have become nearly normal in appearance, and the patient has gained several pounds in weight, though before he had been constantly losing weight for some weeks, and seems to be in every respect improved. The patient, a very intelligent gentleman, attributes his improvement almost wholly to the employment of the oxygen, as the measures which had been previously employed had had little or no favorable influence upon his condition, and no change in regimen or treatment has been made with the exception of the administration of the oxygen. It seems to the writer that there may be a large field of usefulness for oxygen employed after this method. The advantages of the employment of oxygen by enema, as compared with the inhalation of oxygen, are very great.

1. In the inhalation of oxygen, only a very small portion of the gas inhaled can be used, the greater part being wasted; as experiment has shown that not more than one-fourth of the oxygen contained in the air is extracted by the lungs during the passage of the air through them in ordinary respiration, and that a very much smaller proportion is absorbed when the quantity of air passing through the lungs is increased, as in deep breathing. Hence, in order to get into the system any considerable quantity of oxygen, it is necessary for a person to inhale a very large amount, making the treatment very expensive.

2. Experiments which have been made for the purpose of testing the therapeutic value of oxygen inhalations

have shown that the proportion of oxygen absorbed by the lungs is not proportionally increased by the increase of the percentage of oxygen in the respired air. Indeed, the reported results of careful experiments show that very little more oxygen was actually received by the system when breathing pure oxygen than in the breathing of ordinary atmospheric air. When oxygen is introduced into the alimentary canal the entire quantity introduced is absorbed, and thus utilized, making it possible to introduce a known quantity of oxygen into the system, and in a manner which leaves no room for doubt that it has been received and appropriated.

3. In cases in which it may be considered desirable that a considerable quantity of oxygen should be introduced into the system for the purpose of encouraging the oxidation processes by which effete matters are disintegrated and prepared for alimentation, especially those which are acted upon by the liver, the oxygen enema offers a means by which the gas can be applied where it is most needed. Oxygen received by the lungs passes at once to the left side of the heart, and thence through the arterial system to the entire body, so that the liver receives no more than its due proportion of the gas. Consequently, a very considerable increase in the quantity of oxygen absorbed through the lungs would scarcely increase to an appreciable degree the amount of oxygen available for use by the liver. This fact is made particularly conspicuous when we reflect that the chief source of blood-supply to the liver is the portal circulation. It is apparent, however, that when oxygen is introduced into the lower part of the alimentary canal, it is at once received through the venous absorbents into the portal circulation, through which it is conveyed directly to the liver, precisely where it is needed, thus making the entire amount of oxygen administered available for the purpose for which it is administered. Is it not, then, apparent that this method of administering oxygen possesses, for cases of the sort referred to, an immense advantage over its use by inhalation?

4. The process of digestion is, from a chemical standpoint, chiefly a process of hydration and oxidation. The experiments of Dujardin-Beaumetz, performed some time ago, showed that the drinking of oxygenated water exerts a very beneficial effect upon the digestive process in persons suffering with slow digestion. (I have not seen any extended account of experiments of Dujardin-Beaumetz; I have simply seen in medical literature a mention of the fact stated.) May it not be true that, in some cases, at least, the difficulty under which the digestive organs labor is a lack of a sufficient supply of oxygen in the blood, or, at any rate, that the introduction of oxygen into the portal circulation by oxygen enemata may be found to facilitate the digestive process? It is very easy to make a practical test of the matter, and I am now engaged in a series of experiments in the use of oxygen in various forms of dyspepsia, the results of which I shall report at some future time.

5. It seems to me that oxygen enemata may be employed advantageously in a great variety of cases; in fact, in all cases in which there is such a disturbance of the normal interchange of gases in the lungs as deprives the system of its proper amount of oxygen. The mucous membrane of the intestines presents an absorbing surface; very small, it is true, when compared with the amount of surface presented to the air in the lungs, and yet it is sufficiently great to allow of the introduction into the system of a large amount of oxygen in addition to that which can be gotten in through the lungs; and this additional quantity, though small when compared with the total amount received by the lungs, may be of sufficient value to the system to be of immense advantage to it, especially on

account of its introduction at this particular point in the circulation. The notable functional disturbances of the stomach which accompany various pulmonary disorders, such as emphysema, chronic bronchial catarrh, chronic pleurisy, pneumothorax, etc., suggest a very important relation between the digestive function and the quantity of oxygen received through the lungs. The same relation is also suggested by the frequency with which dyspepsia occurs among sedentary persons, who are habitually air-starved in consequence of deficient muscular activity. Oxygen enemata may prove a valuable remedy in cases of this sort, as well as in others in which an additional supply of oxygen is needed.

I have carefully questioned patients respecting the retention of the oxygen injected, and have found that it has always been retained without difficulty, and does not pass off as flatus from the bowels or eructations from the stomach. This fact offers good evidence of its absorption; but to determine the fact beyond the possibility of question, I made, on July 20, an experiment on a guinea-pig. After placing the animal under chloroform, the abdomen was opened, and the intestines drawn out and spread out in such a way that the dark portal veins were in full view. A quantity of gas was then injected into the rectum, and, to my great satisfaction, I found that the dark venous blood assumed a bright red hue, almost equal to that of arterial blood, within less than one minute after the injection of the gas, showing the rapidity with which the absorption of the oxygen takes place. To confirm the result, I allowed the oxygen to escape from the bowels, afterwards replacing it, and repeating the experiment several times. In each instance the color of the blood in the mesenteric veins assumed its ordinary dark purple color immediately after the oxygen was withdrawn, while the bright color returned almost instantly when the new supply of oxygen was introduced. I have been informed by Dr. Hal Wyman, of Detroit, that he made a similar experiment upon dogs a number of years ago, and that he observed the same result as regards the effect of the oxygen on the color of the blood in the portal circulation, but I understand that he made no attempt to employ oxygen in this manner for therapeutic purposes. Indeed, I am not aware that the gas has been used in this manner prior to my own experiment in the case which I have reported. I shall, however, be much surprised if I learn that I am entitled to the credit of priority in this matter, as it seems to me that I must have been very dull not to have sooner thought of this mode of employing so valuable an agent as oxygen.

It has been long known to physiologists that in certain fishes the mucous lining of the alimentary canal performs a very important part of the work of the respiratory system. Some members of the gar family are killed as quickly by cutting off the supply of oxygen to the alimentary canal as by interrupting the gill respiration. Great numbers of illustrations might be given from the lower classes of the animal kingdom in which the entire process of respiration is carried on by the mucous lining of the alimentary canal. Why, then, should not man, whose alimentary canal is very much more extensive and better fitted for absorption than in lower animals, also be able to receive a very appreciable and efficient amount of oxygen through this channel? In my experiments thus far I have found that patients take, without inconvenience, from one to two litresof the gas at a time, and this dose can be repeated three or four times in the twenty-four hours without any difficulty. I have never found any serious discomfort to be produced, although in large quantities it does not seem to be tolerated quite so readily as the carbon-dioxide and sulphuretted hydrogen mixture.

I am employing the oxygen enemata

in a variety of cases, in one of which, a case of phthisis, the beneficial results arising from the gas have been surprising. When the treatment was begun the patient had for some time had an evening temperature varying from two to three degrees above normal. The morning temperature was from 99° to 99⅗°. Within forty-eight hours after the use of the oxygen was begun the temperature fell to normal, and did not rise above 99° at any time, until about two weeks after the beginning of treatment, when the febrile symptoms reappeared as a result of an operation for the relief of a troublesome hæmorrhoid, following which the patient, by imprudence, contracted a slight cold.

In the use of the oxygen enema I have employed a new form of apparatus, which I devised some time ago, and which I described in a paper read before the late meeting of the Medical Association in Chicago. The especial advantages of this apparatus are convenience in use, precision in dose, and an easily-regulated and perfectly uniform flow—*Therapeutic Gazette.*

A CASE OF RECURRENT PARALYSIS OF THE MOTOR OCULI.

BY O. F. WADSWORTH, M.D.

The case which I wish to report appears to belong to a class characterized by a very distinctly defined group of symptoms. At intervals varying in length both in the individual cases and the same case, there occurs paralysis of all the branches of one oculo-motor nerve. The duration of the paralysis also varies. Always it is the same nerve that is affected, the other nerves remaining free. In most cases, possibly in all, the attacks are preceded, or, at least, accompanied by headache, confined to the corresponding side of the head, and chiefly localized in the frontal region.

Pauline and Frances, twins, were born of healthy parents, both of whom are still living and well. There were five other children in the family—two older, three younger than the twins. With the exception of a girl, the second after the twins, who died at eleven months of "congestion of the brain," all were healthy. In June, 1874, when the twins were nearly three years old, both had scarlet fever, and both had a discharge from the ear. Both seemed to recover well and to be healthy for some time afterward, although in both a slight discharge from one ear continued, and Pauline had occasional headaches.

Although Frances is not the one whose case I present, it may be of interest to follow briefly her history, as it seems to have a bearing on the etiology of the other case. In September, 1877, when six years old, three years after the attack of scarlet fever, she began to complain of headache. The headache returned more frequently, and was of longer duration till the following December, when she had a convulsion. Three weeks later convulsions recurred, and the attacks became more frequent until, finally, they occurred almost daily. About the middle of March, 1878, after a convulsion, she complained that she could not see. A week latter, March 21st, she was admitted to the nervous department of the City Hospital. On the same day I found well-marked optic neuritis and many white spots around the macula in both eyes. May 13th, Dr. J. Orne Green found the left membrana tympani much thickened and drawn in. She remained in hospital eleven weeks. The headaches and convulsions ceased, and the discs became atrophic. Sight

did not return. I saw her again February 24, 1879, in the out-patient department. She had had an occasional headache since leaving the hospital; but was otherwise, excepting her blindness, well, well-nourished, of good development, rosy-cheeked. She could only distinguish light from darkness. The pupils were large; the optic discs presented the appearance of atrophy following neuritis. Since that time I learned that she has been well, free from headache, and has had no discharge from the ear. She is now a pupil at the Perkins Institution for the Blind, in South Boston.

Pauline, the subject of the oculo-motor paralysis, after the scarlatina in the summer of 1874, had attacks of headache every month or two ; in the early part of 1878, headache for several hours each day during three weeks. The monthly or bi-monthly headaches continued, and, on February 24, 1879, being then seven years old, she was brought to the hospital, with her sister, having suffered from headache daily for two weeks. The headache was referred to the right supra-orbital region; was said to commence every day about noon, to intermit about three, and to recur about five, and then continue some four hours. There was vomiting on the first two days. Appetite impaired; dejections and micturition normal; tongue clean; general appearance good; a slight discharge from right ear; swollen glands behind each ascending ramus of jaw. Dr. Green examined the ears, but my notes state only that he found inspissated pus in the right. The right eye was quite normal, its refraction nearly emmetropic; the left eye highly myopic, with a regular crescent of one-third to one-half the diameter of the disc.

March 29, 1880, she was seen again. Meanwhile, headache every month or two, usually ushered in with vomiting, and lasting from one to three days. When free from these attacks, she had appeared perfectly well. She was at this time suffering from headache which had lasted a week, the pain referred, as always, to the right supra-orbital region. There was vomiting at the beginning of the attack. She moaned in her sleep. Tongue clean; dejections regular; pulse 100, temperature 98.8°. Five or six days after this attack began, ptosis and divergence of the right eye was noticed.

There was paralysis of the right motor oculi. In other respects, the condition of the eyes as before. Dr. Green again examined the ears, but my notes only describe the condition he found in the left. Its membrana tympani was much drawn inward and opaque from swelling, and there were several spots of ecchymosis. Its hearing was very fair.

At the end of Feburary, 1887, Pauline came again to the hospital. She was now fifteen, well grown, and apparently healthy. Her headaches had diminished in frequency; for the last few years, she had had three or four each year, lasting from one day to two weeks, the more severe ones being accompanied by complete ptosis of the right eye and dilatation of the pupil. She had noticed no diplopia at these times, and no special change in the position of the eyeball. She stated that the ptosis and dilated pupil always continued till the headache was over, and then gradually passed off, so that at the end of a week or ten days they had entirely disappeared. The latter statement was probably incorrect, and I shall refer to it again. She had just recovered from a headache of two weeks' duration, accompanied by vomiting. There was a moderate amount of ptosis of the right eye, and nearly complete paralysis of all the other muscles, external and internal, innervated by the right motor oculi. Moderate divergence. The external rectus and superior oblique acted normally. Fundus of both eyes as before. She was seen again twice, at intervals of two or three days.

March 4th, there was a little more movement of the eye inward, upward, and downward; a little more action of the pupil and of the ciliary muscle. R., V.=$\frac{20}{20}$. L., with—14 D., V.=$\frac{20}{70}$. Field normal. She promised to come again, but did not.

April 24th, I visited her at her home. There was still a slight droop of the right upper eyelid, decided impairment of movement of eye upward, moderate impairment of movement downward and inward. The pupil did not react fully, and power of accommodation was imperfect for her age. She was, however, conscious of no defect of motion in the eye, nor aware that the pupil was affected. This was eight weeks after cessation of the headache, and it is probable, therefore, that previous paralyses had not passed off completely, as she had stated, especially as her father had observed that her eyes usually appeared not quite straight. That she should never have been troubled by diplopia is not surprising in consideration of the great myopia and imperfect vision of the other eye.

I was unable to see the mother, who was away at the time of my visit; but the father was positive that the attacks had diminished in frequency of late years—the last severe one having been in the previous July, an interval of seven months. Another fact of much interest I first learned from him, that with each severe attack, toward the end of the period of headache, there was a free discharge of ill-smelling fluid from the right ear, staining the pillow, and requiring syringing for some days. At my request and representation of the importance of treatment of the ear, she visited Dr. Green on May 6th. He found a large polypus completely filling the right meatus and removed it, but after two or three visits she ceased attendance.

These cases apparently occur but rarely. I have found but fifteen reported, with one exception already collected by Mauthner, although very possibly some publications during the last year have escaped my search. And of these fifteen several are very meagerly reported—two in such a way that it seems by no means certain that they properly belong to this category. On the other hand, with one exception, reported by Gubler in 1860 (Mauthner has recently published notes of a case seen in Von Graefe's clinic in 1864), the earliest observation published was in 1882, so that it is probable that the number of reported cases will increase considerably in the immediate future.

The sex is not mentioned in one of the doubtful cases; of the remaining fifteen, including mine, four were males, eleven females.

In the two cases I have regarded as doubtful the side is not given; of the other fourteen, in seven the right, in seven the left motor oculi was affected.

The age at which the paralysis first appeared is not given in three cases, including the two doubtful ones; in one it occurred at eleven months, in one at eighteen months; the latest date, with one exception, is fourteen or fifteen years. The exception is a case briefly referred to by Buzzard, a woman of thirty, "subject for years to paroxysms of facial tic, recurring about every fortnight, and concentrated more or less definitely in the ophthalmic division of the fifth nerve." Within the last year or two each attack had been followed by partial paralysis of the oculo-motor, the paralytic condition lasting for a few days. One of the attacks he observed.

The varying length of the intervals between the attacks has already been noticed. In the case just cited it was shortest—two weeks. In Von Hasner's case the attacks recurred every month, and although preceding by two years the establishment of the catamenia, after their appearance were coincident with them. In most cases the interval was not a regular one, and lasted from a few months to a year. In Gubler's case there were two intervals of three years, then one of sixteen years before the

last attack, which was followed a fortnight after its commencement by death.

The period of headache varied, even in the same patient, in one case from one day to several weeks. And a similar difference appeared in the duration of the paralysis. Although the patients often are said to have stated, as in my case, that the paralysis passed off completely in the intervals, there is, I believe, in no case the definite statement that its entire disappearance was observed by the reporter. On the other hand, in several instances evident remains of the paralysis were observed to persist between the attacks.

With four exceptions, it is distinctly stated that pain resembling megrim accompanied the attacks. Of the exceptions, Gubler's patient was seen only some days after the paralysis was established; the case is reported very briefly, but it is said that the man had all his life been subject to violent attacks of megrim. Weiss's case is also very briefly reported (the patient was of little intelligence and unfamiliar with the German language); nothing is said of pain. The other two are the cases classed as doubtful. These were reported in a discussion which followed a report of a case by Snell. In one, by Ormerod, it is not clear that there were ever more than two attacks; the patient was an elderly woman; the Argyll Robertson symptom was present, but the knee-jerk not wanting. It is stated that there was pain in the region of the supra-orbital nerve, but nothing to suggest megrim. Of the other, by Beevor, we learn only that he "had seen a similar instance in which exposure to cold winds were (*sic*) assigned as the cause." Perhaps both these cases had better have been omitted from the list.

Only in one case, that of Thomsen, was there observed contraction of the field of vision during the attack; and here the concentric contraction was was found in both eyes, although of much less amount in the eye free from paralysis. This case was complicated by epilepsy. The man was thirty-four years old; the recurrent paralysis began at the age of five; the epilepsy first appeared at thirteen years, and followed directly a fall from a ladder, which produced temporary unconsciousness.

The course of the disease is extremely variable. In some cases the duration of the paralysis and the intervals between the attacks seem to have continued the same; in some the attacks became more, in others less severe; in some again the periods of freedom became longer, in others shorter. There is no instance of permanent relief, perhaps because the time of observation was not sufficiently prolonged. Three cases terminated in death.

Different interpretations of the cause of the affection have been given. Some have considered it a purely functional disturbance, analogous to ordinary migraine. Others have supposed a tumor or inflammatory process at the nucleus of the nerve. Others again a pachy- or lepto-meningitis, an anomaly of the vessels, or a tumor at the base.

It seems to me very difficult to admit the theory of a purely functional disturbance, especially in view of the partial persistence of the paralysis noted in several cases between the attacks. There are also difficulties in the way of an assumption of a disease-process at the nucleus, lasting for many years, extensive enough to involve all branches of the nerve, subject to frequent exacerbations, and yet never affecting any other nerves, either of the same or opposite side. A basal origin appears more probable.

The results of autopsy in the three fatal cases also point to the base as the seat of the trouble. Gubler's patient died after a short illness with delirium running into coma. A plastic exudation surrounded the right motor oculi. There were other lesions, but this was the one which seemed best to explain the paralysis.

Weiss's patient died of tuberculosis of the lungs. The right motor oculi

was flattened, gray, and showed a tubercular enlargement at the point where it issued from the crus cerebri. The granulations did not extend into the brain substance.

Thomsen's case passed from his observation, and died about a year later of gangrene of the lungs. The end of the case was reported by Richter. There was a fibro-chondroma of the right motor oculi, which doubled its size, but had developed in such away as to separate the nerve fibres without destroying them.

In my own case the history points pretty distinctly to a direct connection between the aural disease and the paralysis of the third nerve. There can scarcely be a doubt that a meningitis was set up by the aural disease in the twin sister. It seems here not unreasonable to suppose an exudation or thickening over a limited portion of the dura, which makes pressure on the motor oculi whenever a re-excitation of inflammation in the ear with retention of pus induces an increased vascularity or swelling. And when it is remembered that the third nerve penetrates the dura some little distance farther forward than the fourth and sixth, it is seen that such a limited thickening might readily be situated so as to affect the third nerve alone.—*Boston Medical and Surgical Journal.*

EXOPHTHALMIC GOITRE.

In a case of exophthalmic goitre recently reported by Jendrassik, beside the cardinal symptoms of exophthalmos, goitre, and tachycardia, together with tremor and restlessness, there were also noted paralysis of the ocular muscles, of the facial and masticatory muscles, and, to a lesser degree, of the muscles of the pharynx and of the upper extremity. The writer satisfied himself that this paralysis was nuclear, and not peripheral — an external ophthalmoplegia, due to disease of the nuclei in the medulla, a polioencephalitis superior (Wernicke), or, as he prefers to call it, poliomyelencephalitis superior. He questions whether the presence of the symptoms of exophthalmic goitre and of ophthalmoplegia are due to a mere coincidence. He cites other cases like the one reported, and suggests that exophthalmic goitre may be due to disease of the medulla or mesencephalon. Since three distinct and distant parts of the body are involved, the lesion must be located in some place where the different efferent nerves lie near one another. He contests the theories that exophthalmic goitre is a general neurosis, or a lesion of the cervical sympathetic, and claims that it is due to a central lesion, located in the medulla or mesencephalon. The fact that only one or two of the three cardinal symptoms may be present is explained by supposing that only one or two nuclei are involved. Various cases of exophthalmic goitre show, moreover, that there are not infrequently symptoms present which point to a bulbar lesion — opthalmoplegia, diabetes mellitus, etc. — and, in other cases, the existence of muscular atrophy shows that the nuclei in the cords are also affected. The writer, therefore, believes that in this disease there is a constant and circumscribed lesion of the gray matter in the medulla, about at the level of the nucleus of the facial. This theory is further corroborated by the experiments of Filehne, who found that injury of the anterior fourth of the restiform body was followed by the three cardinal symptoms of exophthalmic goitre.—*Boston Medical and Surgical Journal.*

EXTRACTS FROM THE ANNUAL REPORT OF THE SURGEON-GENERAL OF THE UNITED STATES NAVY.

1887.

NAVAL HOSPITALS.

The request for increased appropriations for the preservation and repair of the several naval hospitals must be again repeated. These buildings have been in service for many years, and the work of restoring roofs and improving the systems of plumbing and drainage is urgently demanded.

At the naval hospital, Yokohama, Japan, the privilege accorded to the consul-general of sending sick and disabled men from the United States merchant service to be cared for in the hospital has been exercised throughout the year.

NAVAL SANITARIUM, PENOBSCOT BAY.

At the last session of Congress the sum of $50,000 was appropriated "for the construction of a naval hospital and sanatarium and wharf for landing on Widow's island, Penobscot bay, Maine, said sum to be in full for all expenses of erecting and furnishing said sanitarium, including all necessary improvements on the island."

The building will be completed, weather permitting, by December 15, 1887.

MUSEUM OF HYGIENE.

On July 1 the Museum of Hygiene was removed to a large aud commodious building in New York avenue, near the Navy Department, where it is well established, with room for its increasing collection.

Dr. Turner's report is presented herewith.

Tentative experiments have been made at the museum upon the steel used in the new guns for the Navy in order to determine the chemical value of the steel.

These examinations have been limited to the determination of the amount of carbon, silicon, phosphorus, and sulphur existing in the samples presented. The investigation is interesting and important, as the presence of these bodies is known to affect the physical properties of steel.

MEDICAL CORPS OF THE NAVY.

The condition of the Medical Corps of the Navy, which was represented to you last year and commended in your yearly report to the attention of Congress, urgently calls for legislative action. The numbers are still diminishing. There are now twelve vacancies for assistant surgeons. The loss of members in the active list of the corps during the year amounted to nine officers; and only six assistant surgeons were appointed, one of whom has since resigned to enter the Medical Department of the Army.

A bill to improve the condition of this department of the Navy has been prepared to be submitted for your approval on the meeting of Congress.

INSANE OF THE NAVY.

There were sixty-nine patients belonging to the Navy treated in the Government Hospital for the Insane, in the District of Columbia, for the year ending September 30, 1887.

Remaining in hospital September 30, 1887		60
Admitted during the year ending September 30, 1887		9
Total under treatment		69
Discharged during the year:		
Recovered	6	
Improved	1	
Died	4	
		—11
Remaining in hospital September 30, 1887:		
Officers	7	
Enlisted	51	
		—58

In consequence of the inability, from the want of accommodation, of the Asylum for the Insane at Napa, Cal., to receive any longer the insane patients from the Navy, the Bureau has directed the transfer of all of the insane of the Navy on the Pacific coast to the Government asylum near Washington, D. C.

REPORT UPON THE MUSEUM OF HYGIENE.

By T. J. Turner, M. D., Director of the Museum.

Herewith is transmitted the second report upon the Museum of Hygiene under its present direction.

The library has not been increased to any great extent, and the want of space for the exhibition of sanitary appliances has retarded inventors from forwarding such new inventions as present the more recent scientific results in the mechanics of sanitation. The greater number of such mechanical devices now on exhibit relate to house sanitation.

The clerical duty involved in the daily routine of the museum has not permitted personal work upon many questions in hygiene demanding experimental investigation. The index catalogue of the library has been attended to so far as possible. The services of a clerk to perform the duty of a librarian has become a necessity. The increase of the chemical work demands an increase in the pay of the skilled assistant now employed in the laboratory.

The removal of the museum in its entirety to the present location necessarily involved the arrest of all work then on hand, and all projected work is still in abeyance, until the new arrangement of the establishment shall have been perfected to such a degree that the usefulness of the museum may not be impaired. The number of visitors to the museum has steadily increased, and there is much of interest displayed by plumbers, sanitary engineers, and architects in the collection and the library.

AIR.

During the past year there has been but little advance made in the chemical examination of the air for sanitary purposes. The determination of the amount of CO_2 still remains as the most convenient factor upon which organic impurity is assumed. Modifications of the apparatus for the determination of CO_2 by Pettenkofer's method frequently appear in the illustrated sanitary journals. It is a known fact that the amount of CO_2 in the air, usually stated as 4 volumes per 10,000, is slightly in excess of the real amount as determined by more recent research. This excess, however, is not so great as to impair the value of the CO_2 estimation as the measure of respiratory impurity. No new investigations as to the organic impurities in the air have come under observation.

WATER.

The well-decided facts of the water carriage of the poison of cholera, and that in all the ports visited by our naval vessels the water supply to vessels is more or less to be suspected, and that following the use of distilled water on shipboard there has been a notable decrease of abdominal fluxes, even in some instances to total immunity from such disease action, it seems therefore advisable that some general order regarding the use of distilled water on shipboard should be issued. The constant iteration of this may at last awaken some naval authority to its importance. It is well known that the tests required from the medical officer, hurriedly made when "the water boat is alongside," are of no decided value in determining the safety-mark of potability.

There has been added to the exhibit a Baird's distiller and aërator. This apparatus is, so far as can be ascertained, the most useful of its kind for use at sea, and it is equally adapted for such purpose on shore. It can readily be attached to an ordinary kitchen range, and would afford an ample supply for all household purposes.

FOOD.

The following table of the composition of foods relates to the ration, and is but complemental to the note on foods in the first report:

Composition of foods.

Articles.	Water.	Albuminoids.	Fats.	Carbohydrates.	Salts.	Other constituents.
Bread	8.	15.6	1.3	73.4	1.7	
Biscuit	40.	8.	1.5	49.2	1.3	
Soft	15.	11.	2.	70.3	1.7	
Corn-meal	14.	11.1	8.1	65.1	1.7	
Corn-hominy	13.5	9.9	6.7	64.5	1.4	Cellulose, 4. 0.
Oat-meal	15.	12.6	5.6	63.	3.	
Rye	15.	8.	2.	69.5	1.8	Sugar, 3. 7.
Wheat	13.56	12.42	1.7	70.55	1.79	
Pork (salt)	44.1	26.1	7.	------	22.8	
Beef (salt)	49.1	29.6	.2	------	21.1	
Roast beef	54.	27.6	15.45	------	2.95	
Canned mutton	(*)	(*)	------	------	------	
Chicago corned beef	40.	40.	15.	------	5.	
Brawn	(†)	(†)	------	------	------	
Ham	27.8	24.	36.5	------	10.1	
Bacon	15.	8.8	73.3	------	2.9	
Sausage	(*)	(*)	------	------	------	
Fish (fresh): From	75.	10.	1.1	------	1.	
Fish (fresh): To	85.	19.	13.8	------	1.8	
Fish, dried (cod)	78.	18.1	2.9	------	1.	
Beans	14.76	24.27	1.61	56.10	3.26	
Pease	15.	22.	2.	53.	2.4	
Rice	10.	5.	.8	83.2	.5	
Apples, fresh	86.28	.08	------	6.45	.3	Malic acid, .08; woody fiber, 3 8.
Peaches, fresh	85.	.46	.61	1.6	.5	Cane sugar, 7.6—to be added to carbo-hydrates.
Raisins	------	4.1	------	68.	2.3	
Fresh currants:						
Red	85.27	.68	------	6.44	.57	
White	84.8	.30	------	7.69	.56	
Figs	24.94	13.3	------	48.9	1.77	
Dates	21.6	10.93	------	56.41	1.5	Cane sugar, 56.41; oil, .19; pectin, 6.99; woody fiber, 2.38.
Butter	6.	.3	91.	------	2.7	
Tomatoes	89.8	1.4	------	6.7	.8	Cellulose, pectose, 1.3.
Coffee	.36	12.03	8.3	1.84	5.17	Cane sugar, 1.84; caffeine, 1.06; gum, tannin, 26.28; cellulose, 44.96.
Tea (black)	11.56	15.55	------	------	5.82	Tannin, 15.24; theine, 2.53.
Tea (green)	9.37	24.39	------	------	5.38	Tannin, 18.69; theine, 2.79.
Cocoa	6.12	18.	------	13.	3.6	Cocoa butter, 50.
Sugar	3.	------	------	96.5	3.6	Cane sugar, 96.5.
Pickles	(*)	(*)	------	------	------	
Molasses	27.3	------	------	67.4	2.6	Cane sugar, 47; extractives, 27; glucose, 29.4.
Vinegar	87.6–96.3	------	------	------	------	Acetic acid, 3 to 10; extractive, 1.7 to 2.4.
Beef (fat)	45.6	15.	84.8	------	4.6	
Mutton (fat)	39.7	11.5	45.5	------	3.5	
Veal (fat)	62.3	16.6	16.6	------	4.5	
Pork (fat)	38.6	10.5	49.5	------	1.4	
Poultry	74.	21.	3.8	------	1.2	
Vegetables	(*)	(*)	------	------	------	

* Composition variable. † Same as bacon.

Some discussion upon the bulk of the ration has been had of late, and the tendency is toward decreasing the bulk, as compared with weight, as a saving in the means of transportation.

Elsewhere the writer, in commenting on the naval ration, has stated that the ration in port represented 32.49 ounces average, and at sea 24.75 ounces average of water-free food. It is to be stated that this result is calculated from the chemical composition of the food, and that long before this weight could be obtained by any process of dessication physical changes occur, rendering the food unfit for nutritive purposes. It is a matter of every-day observation on shipboard that dried vegetables especially do not regain their original sapidity when treated with fresh water, added for the purpose of restoring them to their normal condition.

The fashion for the day in the matter of foods is in the use of the so-called peptonized, malted, soluble, etc., foods. Their use belongs, in a great degree, to the therapeutics. Some experiments have been made in the museum to determine from a physiological basis the nutritive values of foods. As the investigation progressed much was learned of the difficult nature of the examination, wherein the value of each condition had to be determined as influencing any series of observations.

Having in other papers upon matters connected with naval hygiene considered the ration, it is proposed to offer some suggestions concerning the distribution of the food as well as the rearrangement of the meal hours more consonant with the physiology of the digestive act; and, therefore, more conducive to the health of the crew. At present the meal hours are as follows:

Breakfast at 8 A. M.; dinner at 12 noon; supper at 5 P. M., and upon "turning out an additional ration of tea or coffee and sugar." It is evident that the men are from 5 P. M. until 8 A. M., 15 hours, without food, and that the bulk of the food is ingested in the remaining 9 hours of the day. Now, the digestive act is completed, in so far as the finding of the remains of the food in the stomach is concerned in from 2 to 3 hours (Beaumont on Digestion), so that the men in the mid and morning watches, often accused of "loafing" and a want of activity, affected with lassitude and a restless wakefulness, akin to morbid vigilance, are in this condition but giving physiological expression to the wants of the economy requiring food stimulation. This condition is a powerful factor in predisposing to disease, and the cumulative effects are seen in the depressed vitality of the sailor later on in his life.

Considering the variety as well as the bulk of the ration, a proper distribution, from careful study, would be as follows: Dividing the whole ration into 9 parts, assign 3 parts for breakfast, 4 parts for dinner and 2 parts for supper—"that is to say, breakfast to restore the waste, dinner to support during the hours of active toil, and supper to carry on the functions of repair and secretion." (Letheby.) This division, however, does not consider the fact of the loss of sleep in the night watches at sea; but as there is the turning out meal, and a suggestion as to the mid-watch, it is believed to be correct both from a chemical and physical view.

Again, it is known (Smith, "Cyclical Changes in Health and Disease"), that after the indigestion of food, pulsation, respiration and temperature rise, indicating more active functional work in the digestive act, and that this rise occurs within from two to three hours after a meal. It has also been observed that pulsation, respiration and temperature are lowest from 3 to 6 in the morning. It would appear, therefore, that the ration on turning out has a physiological foundation.

Reasoning from these facts, together with the known physical relations of

food to work, it is suggested that by shifting the dog watches from 12 to 2, and from 2 to 4, the following arrangement of the meal hours could be made which does not interfere with the routine work of the ship: Continuing the ration as directed by law upon turning out, to have breakfast at 8 A. M., dinner at 2 P. M., and supper at 8 P. M., reserving for the mid-watch, as they go on duty, a portion of the ration of tea or coffee and a biscuit.

Thus the food of the sailor is served out more in accord with physiological requirement, the health and energy of the men are conserved and correlated, there is more immunity from disease-influence, and so their efficiency for work is kept at its best standard.

As not foreign to this subject, the experience of a British officer at Gibraltar should be mentioned. Giving his troops a supper at 8 P. M., it was observed that a manifest decrease in the number of cases of drunkenness followed this salutary measure. The stimulus of food had supplied the desire for rum.

There are but few instances of any variation from the ancient methods of cooking meals on shipboard. The "coppers" still retain the name, although that metal has long been disused in the construction of the galley. The preference of the writer has already been given to the "improved galley" for use in ships of war, but this short sketch would be incomplete without some hints as to the personnel of the cooking force.

To secure economy, cleanliness, comfort, and so aid in the maintenance of the health of the crew, the following suggestions are offered:

As one ration in four may be commuted, and as the money value thereof is expressly directed to be expended "for the sole purpose of affording a means of adding to and increasing the variety of food provided by the Government"—establish the rating of ship's steward—who should be directed to make purchases, when in port, of such articles as the messes may require; to post, weekly, for the information of the crew, the price current of the articles purchased, and be held responsible for the moneys intrusted to his charge for such purposes. Retain the present billet of ship's cook, abolish the present system of mess cooks, and make a rating of assistant cooks, in the proportion of one to every thirty men of the ship's complement. Build a pantry, doing away with the cumbersome mess chests that now lumber up the decks, stow in the pantry all mess gear—"pots, kettles and pans," when not in use. Let the assistant cooks keep the pantry clean, spread the mess gear for meals, gather up the same after meals, cleanse and re-stow them in the pantry, attend to the serving out of the ration, the preparation of the food, as well as its distribution at the appointed meal hours, etc.

These suggestions are departures from old customs, but are warranted by the advancing study of naval hygiene.

In the matter of poisoning from canned food, the following may prove instructive:

The results of the micro-chemical observations made at the museum upon the following articles received from the hands of Passed Assistant Surgeon C. W. Deane, U S. Navy.

Two wide-mouthed glass bottles—one stated to contain "canned ham," suspected to have caused symptoms of poisoning, and one stated to contain a sample, unused, from the same invoice as the suspected ham.

It was also stated that the symptoms of poisoning occurred about two and a half hours after the ingestion of the suspected ham.

A portion of this meat, after twenty-four hours' immersion in alcohol sp. gr. .820, was treated with HCl (one part to ten parts of water), in a porcelain capsule, over a water-bath, for two hours, at a temperature of 37.5°C., and then filtered; a portion of the fil-

trate was examined by the usual tests, and gave no reaction for any metallic substance.

From the odor there was no evidence of any putrefactive change. The fat and muscular tissue, however, were readily separable, the connective tissue easily breaking down under slight pressure of a glass rod. The muscular fiber also readily separated into small bundles, recalling the "boiled rope yarns" of canned meats, so well known to messes on shipboard. Morache ("Traité d'Hygiène Militaire," 1886) states that the frequent accidents which so often follow the ingestion of salted meats badly conserved have no other origin than from the formation of septic alkaloids from the albuminoid principles of the meat. Accepting these appearances as those of a retrogressive change and as evidences of the want of the preservation of the food by the "canning method," the following experiments were instituted for the isolation and detection of such bodies:

A portion of the acid solution was treated with a solution of *sodic hydrate* until slightly alkaline. A slight precipitate appeared, which, under the microscope, was found to be composed of minute crystals of sodium chloride.

Another portion of the acid solution was treated by ammonia water and *ether;* the ethereal solution was separated and allowed to evaporate spontaneously, then treated with a solution of osmic acid, and examined under the microscope; fat globules only were apparent.

Another portion of the acid solution was treated by ammonia water and *chloroform;* the chloroform solution separated and allowed to evaporate spontaneously, and the residue examined under the microscope: crystals of ammonium-chloride only were found.

Another portion of the acid solution was treated by ammonia water and *amyl-alcohol;* the amyl-alcohol solution was separated and evaporated over a water-bath, the residue examined under the microscope: crystals of sodium-chloride only were found.

Another portion of the acid solution was treated by ammonia water and *dilute alcohol;* the dilute alcoholic solution obtained was evaporated over a water-bath and the residue examined under the microscope: crystals of ammonia-chloride only were found.

A watery solution, obtained by digesting a part of the suspected matter in distilled water over a water-bath for two hours, treated with ether to remove fatty matters, and the separated *aqueous solution* examined, after evaporation by a gentle heat, under the microscope, presented crystals of sodium-chloride, and no trace of any other matter.

Upon testing a portion of this aqueous solution by potassic-mercuric iodide for organic matter, there was no reaction.

A portion of the aqueous solution was rendered acid by dilute sulphuric acid; to a part of this solution was then added a few drops of a freshly prepared solution of potassic-ferridcyanide, and then tested by a dilute solution of ferric-chloride—no reaction showing that any reduction had taken place from the presence of organic matters, especially the ptomaines, was evident.

No evidence of trichina were found. The microscopical examination of sections of the suspected and unsuspected meat was made by Surgeon C. H. White, U. S. Navy, and no departure from the normal histological appearance in meat was observed.

In so far as the culture-experiments upon these substances have progressed under the management of Passed Assistant Surgeon G. Arthur, U. S. Navy, no generic forms of zymogenic bacteria have been found, after "cultivation" at a constant temperature of 35°C. for five days in sterilized test-tubes.

From the facts obtained by the chemical examination it is concluded—

1st. That the phenomena presented in these cases of poisoning can not be ascribed to any *inorganic poison.*

2d. That the examination for the alkaloidal bodies, resulting from slow chemical changes in the suspected meat, does not reveal their existence by methods used for their isolation. In other words, no *organic poison* was detected by the methods described.

These processes were arranged to capture, so to speak, any of these bodies by their solubilities or insolubilities in the different menstrua used, and the processes are alike applicable to the use of other acids, organic or inorganic, and to other menstrua, such as benzole, petroleum-ether, etc., in like examinations.

Although the entire examination has resulted as stated, it is deemed proper to present all the processes used from which the conclusions have been obtained.

CLOTHING.

An extended examination upon the clothing furnished the crews of naval vessels as to its hygienic value was inaugurated and placed under the charge of Passed Assistant Surgeon G. Arthur, U. S. Navy. It has not been completed to the extent at first lined out, but enough has been determined to make questionable some of the published results of the investigations, heretofore accepted as positive, of Coulier and Hammond.

LIGHTING.

Of the hygienic value of the electric light on shipboard and its manifest advantages no reports have been received at the museum.

DISINFECTANTS.

Examination of various proprietary articles of this character reveals the fact that they are mixtures of well-known disinfectants.

An investigation as to the value of iodoform as an antiseptic was commenced and abandoned for want of the necessary time needed for such investigation.

The usual chemical, microscopic and physical examinations have been carried on as required, and this report would be incomplete if there was failure to acknowledge the able aid rendered the Director by Surgeon C. H. White and Passed Assistant Surgeon G. Arthur, U. S. Navy, on duty at the museum.

GENERAL CONSIDERATIONS.

Upon the tag marking the price of peace, in our modern civilization, is emblazoned the trade-mark of war—a gun; and whilst attention has been directed more toward the management of masses of men, observant medical men have quietly been considering the results of the first contact of bodies armed with modern instruments of warfare. Granting two opposing bodies—armed with the long-ranged rifled gun, the rapid firing machine gun and the magazine rifle in the hands of the trained soldier—the military medical officer is, of necessity, brought to the front to render the first aid to the wounded. And here the ambulance system should be considered in all its relations. It is not proposed to enter upon a study of the methods suggested for the care of the health and comfort of the wounded, but some remarks as to the status of the medical military officer arise in this connection, and are pertinent to this report. It is fair to assume that the number of wounded requiring aid will be vastly increased over the number of wounded in previous conflicts, and no ambulance apparatus for rendering such aid, be it ever so simple, can be carried in such number as to hamper in the least degree the movements of the opposing forces. Even now the propriety of incumbering the soldier with a few bandages is a subject of discussion, for the drift in all these matters is to reduce to the minimum all the incumbrances to rapid movements. All this applies to movements on land, yet the difficulties are multiplied for the naval medical officer. It needs no stretch of the imagination to depict a landing party, covered by the guns of a vessel, handled by trained men, exposed to a fire from the shore from equally trained gunners. To such a fire the medical officer is as much exposed as his leader. Nor is this all; in times of peace he has to be prepared for war—an incident in the naval life. The steady additions to the etiology of

disease requires him to be always on the alert, to practically apply his knowledge, under the varying conditions of climate and shipboard life, to the prevention and arrest of disease, by attacking its causation.

A FEW FACTS CONCERNING THE RECENT PREVALENCE OF WINTER DIARRHŒA.

BY SHIRLEY F. MURPHY, LECTURER ON HYGIENE AND PUBLIC HEALTH, ST. MARY'S HOSPITAL.

I have thought that our society might well have before it a few facts which I have been able to glean concerning the recent prevalence of diarrhœa during the winter months. The subject was first referred to in a paragraph in a recent number of *The Lancet*, which also contained a letter from Mr. C. H. Taylor of the West London Hospital, stating that a diarrhœa was prevalent in Fulham, Chiswick and Hammersmith; and the *British Medical Journal* of the same date published a communication from Dr. Norman Kerr, telling the same story for the neighborhood of Regent's Park. Later, other corresopndents bore witness to the existence of epidemic diarrhœa in St. James', Bayswater, Marylebone, Clapham, Lewisham, Penge, Kingston-on-Thames, Kent, and even as far from London as Lancashire and Aberdeenshire. The reports of the symptoms from which the patients suffered fairly well agreed. In all cases there was diarrhœa, in the majority abdominal pain, vomiting, cramps in the limbs, great depression, and a symptom of particular interest—high temperature. In a few, the fact was noted that the patients also suffered from hæmorrhage from the bowels. In many instances, the sufferers were attacked in the night, and often in groups, suggesting community of cause. We may assume therefore, in the first instance, that the epidemic, wherever it manifested itself, was of the same nature, and that some of the symptoms to which it gave rise where those not usually met with in ordinary diarrhœa, and that, regarding it as diarrhœa, the disease occurred at an unusual period of the year. We are led, moreover, to conclude that, notwithstanding the area which its operations covered, it is in the highest degree probable that the cause in each locality was the same. And I may go further, and say that this cause was not related to any climatic condition; for, if we examine the dates of outbreaks in public institutions situated near to each other, and therefore subject to the same climatic conditions, we do not find that these dates exactly correspond; and, further, some institutions also in the neighborhood of those which were invaded escaped altogether. The cause must, nevertheless, be one capable of operating over large extents of country.

My own opportunities for learning some particulars of this illness, were practically limited to its behavior in a special hospital in Central London, which I first visited for that purpose on January 27th. I was informed by the senior house-surgeon, who had taken great interest in the matter, that half the inmates of the institution, about two months before, had been attacked suddenly with diarrhœa, the patients alone suffering and the staff altogether escaping. On January 25th, the incident repeated itself, nearly fifty persons on this occasion being attacked. The distribution of the disease in the hospital is of importance; for again, on the second occasion, the patients were, with trifling exceptions, the only sufferers. The patients are resident in wards situated on three floors; those on each floor taking their meals mostly together. On the first floor are beds for thirty women, on the second floor beds for forty men, and on the third floor twenty-six beds, twenty-one of which are occupied by men and the rest

by children. Of the patients resident in the hospital at the time of my visit, I found that on the first floor there were attacked on January 24th (Monday), in the morning one, in the evening three; on the 25th (Tuesday), in the morning two, in the evening six; on the 26th (Wednesday), in the morning one. On the second floor there were attacked on January 24th (Monday), in the evening one; on the 25th (Tuesday), in the morning eighteen. On the third floor there were attacked on January 24th (Monday), in the evening five; on the 25th (Tuesday), in the morning six. Or, considering those on the different floors together—on Monday, January 24th, ten were attacked; on Tuesday, 25th, thirty-two; and on Wednesday, the 26th, one; the majority of the attacks occurring while the patients were in bed, at some period of the night.

The most striking circumstance in the outbreak is the almost complete immunity enjoyed by the staff. Of twenty-two persons engaged either in attendance upon the sick or in domestic duties, but two suffered from diarrhœa, and these were nurses, both of whom were attacked in the early morning of Tuesday, January 25th.

To enable the exact incidence of the disease upon the patients to be determined, and for the purposes of further inquiry, I ascertained the condition of health of those who had been discharged from the hospital for some time previously, and in this manner elicited information that no patient who left the hospital before January 24th was attacked. On Thursday, January 20th, three patients were discharged, and on Friday, the 21st, three; on Saturday, the 22d, six—none of whom suffered. On Sunday, the 23d, no patients were discharged; on Monday, the 24th, six patients were discharged, three of whom were attacked early the following morning at their own homes. Whatever cause, therefore, gave rise to diarrhœa probably came into operation after the patients left on January 22d—*i. e.*, after mid-day dinner on that day. Of patients newly admitted into the hospital, three admitted on January 20th were each attacked; of two admitted on the 21st, one was attacked; and of three admitted on the 22d, two were attacked. None were admitted on Sunday, January 23d. Five were admitted on January 24th, all of whom escaped. Two were admitted on January 25th, both of whom escaped. The cause of the outbreak, therefore, probably ceased to be operative before the patients were admitted on Monday, January 24th—*i. e.*, the cause was operative only sometime between mid-day on Saturday, January 22d, and mid-day on Monday, January 24th.

It becomes important, therefore, to ascertain the effect of this cause upon the patients *who were in the hospital at this particular time*—changes by admissions and discharges having taken place before my visit. There were sixty patients in the hospital between January 22d (Saturday), mid-day, and January 24th (Monday), mid-day, of whom forty-three were attacked with diarrhœa, either within the hospital or immediately after their return home, giving a percentage of 76·6. Of the staff I have already said there were twenty-two, of whom two were attacked, or 9 per cent. This difference is so great that I was compelled to regard the condition causing the diarrhœa as one with which the patients must be specially related; and this view was strengthened by the fact that the two affected members of the staff were nurses, who may likely enough have come into accidental relation with this condition.

At this period I was not aware that the disease was prevalent in other parts of England, and I was led to examine the incidence of attack upon patients taking milk, water, and other articles of food. Of those who drank unboiled water at their meals there were thirty-three, of whom twenty-five were attacked, or 75·7 per cent., being practically identical with the general average. Of those who drank no water except that which they had in their tea, and which had therefore been boiled, there were twenty-six, of whom twenty-one were attacked, or 80·7 per cent. Drinking water or abstaining from water did not, therefore, affect the

probabilities of attack. Again, forty-four patients drank uncooked milk instead of beer, and of these thirty-four were attacked, or 77·2 per cent.—a proportion equal to the general average. Of fifteen patients who took no milk except in tea, thirteen were attacked, or 86.6 per cent. Drinking or abstaining from milk cannot, therefore, be said to have affected the probabilities of attack. Nevertheless, the large proportion of attacks among patients, and the immunity enjoyed by the staff, strongly indicated some article of food as responsible for the occurrence. The senior house surgeon was good enough to prepare for me a complete list of all the articles of food consumed in the hospital. I may at once eliminate from further suspicion the following: Milk, because the supply was common to staff and patients, because of the evidence already adduced, and also because the same farms supplied milk to another large hospital, which remained free from disease. Water, because it was consumed by staff and patients, and because of the evidence already adduced. The possibility that the local contamination of a cistern was responsible for the outbreak may be set aside by consideration of the fact that separate cisterns supplied the different floors. Tea and salt may be eliminated, because the supply was common to staff and patients. Meat and potatoes, because the supply was common to staff and patients. Beef-tea, because it was only consumed by a few patients. Beer, because those who did not drink beer were also attacked. Bread and sugar, because the same articles consumed by the patients were also supplied to the servants, none of whom were attacked. Rice, because no fresh supply had been received for a long time previously, and the children had been eating rice daily without injury. I may also refer to the fact that other institutions and other parts of the country were invaded, having different milk, water and meat supplies.

There is but one article of food I am unable to exculpate; and, to the possibility of this being the cause of a widespread outbreak, I would desire to direct the attention of the society. I refer to butter, which in the method of its distribution in the hospital in the first instance raises a presumption that it may have been concerned in producing this curious disease. Three qualities of butter were supplied to the institution—(*a*) that provided for the medical officers and matron, (*b*) that provided for the nurses and servants, and (*c*) that provided for the patients. The patients' butter is received on every week-day, at 10 A. M., and is used for tea and supper the same day, and for breakfast the following day, on Saturdays the supply being increased to last until breakfast on the following Monday morning. If we assume that the butter received for the patients on Saturday, January 22d, possessed purgative properties, there is ample explanation of the illness of all the patients who suffered from diarrhœa. That all were not attacked at the same time, and that some escaped, may be due to some unequal distribution of the active principle throughout the butter, or perhaps to some difference in the quantity consumed. There remain the attacks of two nurses, who, it may be mentioned, suffered less severely than the patients from this malady. I have no other explanation to offer on this point than that they must have eaten some portion of the bread and butter not required for the patients. Those who are intimate with hospital life will know that this is no unusual event. Thus far as to this particular hospital. The difficulty which stands in the way of the acceptance of this theory is the fact that other institutions — many persons not living in institutions, and other parts of the country have also shared in the prevalence of diarrhœa.

English butter is made upon the farm on which the milk is produced, and the few pounds which each farm is able to contribute could not be sufficiently widely distributed to give rise to an occurrence such as that we have under consideration. But the butter which I have been led to suspect was that provided for the patients, and low-priced butters come largely from abroad. In other countries butter is not always

manufactured on the farms on which the milk is produced; but large numbers of farms send their milk to central depots, where, I am told, the milk of hundreds of farms is mixed together, made into butter, and coloring matter added, which always gives to it a uniform color and flavor. This is sent over in enormous quantities to the English middle-man, who distributes it to local vendors, from whom it reaches the consumers. In this manner any capacity which the milk from any farm might possess to cause diarrhœa would, if due to an organism, have the possibility of being multiplied by admixture of this milk with other milk, and thus its effects might be felt in many places. Or, perhaps, the method of treatment of the butter in some central depot might be concerned in conferring upon it this power, or possibly by the development of some chemical poison it might have acquired this special property. The symptoms of the sufferers, indeed, remind us of the observations of Dr. Victor C. Vaughan, of Michigan, concerning the effects of a ptomaine he found in cream. It is, under any circumstance, conceivable that butter which possesses this property might be distributed through different channels over a large area of country, and thus induce diarrhœa in one district or institution at one time and in another at the same or at a different time.

I have not had the opportunity of extending my inquiries sufficiently to enable me to thoroughly sift the evidence that could be obtained outside the institution with which I was concerned. I therefore prefer to leave the subject where it is; but I may mention incidentally that one large hospital, which also suffered heavily, received its butter from the same source as that which came under my own observation, and that another suffering very partially required the patients to supply their own butter—thus giving opportunity for it to be procured from many sources, of which perhaps one only was identical with that under suspicion. This difference in the method of supply may perhaps account for the smallness of the number of persons affected in some institutions. I do not wish now to do more than urge—1st, that the nature of the epidemic of which we have recently had experience points to an article of food as the cause; 2d, that the facts learned at one institution, where they were carefully observed, point especially to butter; and, 3d, that any objection to this theory, which is based on the method of distribution of butter made on English farms, falls to the ground when the distribution of foreign and of artificial butters is considered. In conclusion, I would desire very cordially to thank Mr. E. Treacher Collins, whose active assistance has enabled me to ascertain the facts upon which this account is based, and to whose accurate observation I am very greatly indebted—*London Lancet.*

PARASITIC INFECTION FROM DOGS.

Dr. Ollivier, of Paris, is quoted as follows on this subject by the *British Medical Journal* of November 5, 1887:

"The number of hydatid cysts in a country is in direct proportion to the number of dogs. Facts seem to confirm this theory; for they show that there are more hydatid cysts in hill districts than in the low lands, in the country than in towns. The author cites several cases observed by him, in which the cyst was plainly traceable to previous intercourse with dogs, in patients fond of these animals. A long period, sometimes years, may elapse before the echinococcus develops itself, but the cause is none the less evident. Children are always fond of dogs, and like to play with them, and these pets are affectionate and caressing, and have a bad habit of licking; in this way the animal's tongue may

prove a ready means of propagation of the eggs of tænia. It is also possible that they may be inhaled, when, in very dry weather, these eggs are carried about by the wind. This would explain certain cysts in the respiratory organs. The penetration into the human organism, however, generally takes place through the digestive organs by means of salads, green vegetables, fruit and other aliments imperfectly cleaned; or by water from ponds, reservoirs, or wells contaminated by dogs resorting there to drink. The author points out the precautions which should be taken to diminish the danger of propagation of this parasite: greater care in the choice and cleanliness in the preparation of certain articles of food; avoidance of unfiltered water, and particularly of stagnant water of any kind; and, above all, less intimacy with dogs—particularly in the case of children, who should be carefully watched. He condemns altogether house dogs of all kinds, as being a source of continual danger as regards the propagation of the eggs of *tænia echinococcus*."—*Exchange.*

THE MENTAL DIFFERENCES BETWEEN MEN AND WOMEN.

Our social system hinges so much upon the relative interests, claims, and capacities of men and women, that too much assiduity cannot be employed in endeavoring to mould public opinion upon a question whose issues are so vital and far-reaching. The Mohammedan regards woman as probably soulless. Needless to add, he makes her a slave. The modern movement for promoting the higher education of women would have been impracticable but for the steady growth in the public mind of a conviction that this enlarged culture was not only feasible but an obvious duty. The miserable travesty of education which was formerly thought good enough for young women—the scraps of history and mythology, the music, dancing, and deportment, so long the staple pabulum at "finishing" schools for young ladies—could have been tolerated only by a generation which had accepted without question or examination the low views of female intellectual power prevailing in a former epoch. Hence such questions as those handled so ably by Mr. Romanes, in his paper recently published in the *Nineteenth Century*, are no mere academic discussions, but problems pregnant with conclusions of immense practical importance.

Mr. Romanes cannot be reckoned as a partizan of either side. He sums up, as he himself admits, "with almost brutal frankness," the various intellectual deficiencies of women, real or supposed, but adds that "these elements of weakness are in chief part due to women as a class not having hitherto enjoyed the same educational advantages as men." We are glad of this admission, which has a very vital bearing upon current controversies. The opponents of the higher education of women are singularly unfortunate in their line of argument when they dwell with apparent satisfaction upon the superiority of men in depth of insight, comprehensiveness of view, originality, creative faculty, and judgment. Granted that in these respects women are, as a class, somewhat inferior to men, the legitimate deduction is not that feminine culture is useless or futile, but rather that it should be encouraged by every means in our power in order that women may, as soon as possible, make up the leeway consequent upon centuries of apathy and of neglect of their intellectual claims.

We are somewhat surprised that Mr. Romanes should attach such paramount importance to the fact of the female brain weighing, on the average, about five ounces (one-tenth of the whole) less than the male. We are hardly prepared to admit either of the premises upon which an argument can be founded for regard-

ing this deficiency as a necessary sign of intellectual inferiority. These premises are, first, that size of brain is a fair gauge of mental power, and, secondly, that the difference of size between the brains of men and women is greater than might be expected from the difference between their bodies. As regards the first point, cerebral physiology is still in too nebulous a condition to enable us to say more than that, as a general rule, idiots have small brains and men of distinguished capacity large brains. When we put aside the *monstra*, either of excess or defect, it is by no means clear that the possession of a few ounces of brain matter above the average is a fair gauge of intellectual pre-eminence. Further, the remarkable conclusions of Ferrier and his school have established a surprising closeness of relation between the brain substance and the muscular system, while they have shed very little light upon the *nexus* between cerebral matter and intellect. It is a very fair question for investigation whether the smaller brain of the woman is not in large part due to her comparative muscular inactivity.

As regards the second point, namely, whether the smaller brain of the woman is not simply part and parcel of her smaller body, we are by no means satisfied with Mr. Romanes' rather dogmatic statement that the deficiency of five ounces is "proportionately a greater difference between the male and the female organisms, as a whole." It is a very open question whether the body weight of the average man does not exceed that of the average woman by fully one-tenth.

The progress of female education during the brief period in which it has been intelligently and thoroughly cultivated is surely very striking. Women are everywhere justifying the hopes of their champions, and disappointing the gloomy vaticinations of their opponents. Their university successes have exceeded the most sanguine anticipations, and such a brilliant achievement as that of Miss Ramsey, at Cambridge, this year, is enough to cause grave questionings to believers in the natural and inherent intellectual inferiority of women.

While we thus take exception to some of Mr. Romanes' lines of argument, we are thoroughly with him in his condemnation of the fatuous notion of some feather-brained reformers that there is no such thing as sex in mind; and that, granted an identity of training and environment, men and women would be in all respects mentally alike We cannot give space to discuss this theory, and must rest content with the statement that biology and psychology alike emphatically repudiate it. We doubt whether woman is necessarily and essentially inferior mentally to man; we are quite sure she is mentally dissimilar. The great maternal function alone could not operate without gradually inducing intellectual differences which are perpetuated by sexual transmission. All experience tends to show that woman shines in intuition, man in judgment; that woman is strongest when impelled by emotion, man when impelled by will; that man is creative, woman administrative; that woman is greatest in self-sacrifice, man in conquest and achievement. Be these difference inherent in sex, or the outcome of evolution, their existence can hardly escape any observer who does not start with some preconceived theory. Mr. Romanes concludes with a careful and dispassionate examination of the question whether the higher culture is often physically injurous to women, but this important subject we must reserve for future consideration.—*British Medical Journal.*

ON TINNITUS AURIUM.

BY THOMAS BARR, M. D., GLASGOW.

[Abstract of an Introduction to a Discussion in the Sub-section of Otology at the Annual Meeting of the British Medical Association, held at Dublin, August, 1887.]

It is not my intention to place before you anything like a review of the etiology, pathology and treatment of this symptom, as such a course would lead us over far too wide a field of discussion. I cannot better occupy the time at my disposal than by considering shortly, and inviting the expression of your views upon, a few of the special remedies which are recommended or employed for the relief of this symptom. I exclude from consideration these remedial measures, whether operative or medicinal, which are directed to the removal of definite, well-recognized lesions in the external or middle ear, upon the existence of which the tinnitus may depend, and by the cure of which the tinnitus is fortunately often removed. Excluding the consideration of these or other forms of treatment intended to remove any palpable lesion or any evident pathological source in the naso-pharynx or ear, we shall inquire what other weapons do we possess, in addition to such modes of treatment, which may be efficiently employed for combating this symptom. We cannot, I think, do better than confer with each other as to the relative and actual value of the various means which have been proposed and tried in such intractable forms of tinnitus aurium.

The first of these to which I would beg to direct your attention is *electrical* treatment. Great diversity of opinion seems to prevail as to the value of this mode of treatment in tinnitus. I think that in the use of electricity to the ear the mode of applying the electrodes is of great importance. The plan of placing one electrode over the mastoid process or to the orifice of the ear, and the other in the hand of the opposite side, is not, I think, a good one. As thus applied, I believe it to be less efficient and also more apt to excite giddiness or flashes of light. Any good results I have seen have been achieved by applying one electrode, in the form of a piece of sponge attached to the conducting wire, and placed at the end of a vulcanite speculum, deep into the external auditory canal, even to the outer surface of the tympanic membrane; and the other, by means of a metalic ring at the end of a catheter, to the pharyngeal orifice of the Eustachian tube. In this way the galvanic current is passed, as completely as possible, through the middle ear. My impression is that any benefit derived is obtained more from the action of the electricity upon the middle ear than from its effects upon the internal ear, and that the benefit is mainly connected with its action upon the intrinsic muscles of the middle ear. We know the far-reaching influences of disturbance of the muscular apparatus of the Eustachian tube and tympanum upon the whole organ of hearing—first, upon the tension of the tympanic structures, and, secondly, upon the tension of the labyrinthine fluid, and the more efficiently we act upon these tubal and tympanic muscles the more likely are we to have good results. It is very much to be desired that this method of treatment should be placed upon a firmer and clearer basis than heretofore, and it is possible that the more general use of a galvanometer and rheostat may assist in the attainment of this result.

Another method of treatment to which I would ask your attention is the *Tonbehandlung*, tone treatment, brought recently before the profession by Professor Lucæ, of Berlin. Itard and Urbantschitsch had already pointed out the effects of objective sounds outside the body upon subjective sounds in the ear. Lucæ has found that a striking influence is frequently exerted upon certain subjective sounds in the ear, mainly of a musical character, by bringing to bear upon them objective sounds coming from a tuning fork, if these objective sounds be as far removed as possible in pitch

from the subjective ones. For example if the sounds in the ear are high-pitched notes, such as hissing, ringing, whistling, a deep-toned tuning fork, such as C or C^1, is employed; on the other hand, if the sound be low pitched, such as rushing, buzzing, humming, or a low-toned bell, then a tuning fork of a high pitch, such as C^3 or C^4, is used. The vibrating fork is applied either by placing the end of its handle into the external meatus, or, in order to augment the sound, the vibrations are passed through a resonator fixed into the orifice of the ear. The duration of the application may extend from one minute to five minutes, and in order to ensure a continuous sound the tuning fork may be connected with a magneto-electric apparatus. I think Lucæ's observations are of great value, not only in relation to tinnitus aurium, but also to deafness itself. We know that patients frequently assert that the noises in the ear aggravate the deafness, and that if we could banish the sounds the hearing would be improved. Since Lucæ's observations were published I have tried this tone treatment, and I have met with a considerable measure of success, and am of opinion that greater success is in store for this method of treatment. And, as confirming the impressions of patients in regard to the effects upon the hearing, I have found that the hearing power has been distinctly improved, both as tested by watch and speech, during the disappearance or subsidence of the sounds.

Probably of all medicines used for the relief of tinnitus, *hydrobromic acid* has been most extolled. I must confess, gentlemen, my success has not confirmed the panegyrics of some writers. I have prescribed it very frequently indeed, and the somewhat meager results have been disappointing. Our Chairman, whose writings on the pathology and treatment of tinnitus have been so suggestive and interesting, is of opinion that this medicine acts beneficially by bringing about contraction of the dialated and engorged vessels of the labyrinth, through its effects upon the vaso-motor system of the labyrinth. I am afraid, however, that in the forms of tinnitus I am now describing we have generally to do not so much with dilated and engorged vessels, but with the more serious condition of pressure exercised upon the nerve or labyrinthine fluid by condensed, thickened, rigid, or morbid tissue. Whether hydrobromic acid has the power of contracting dilated vessels in the labyrinth is not easy to prove. I can only say that in my experience it has only in a very few cases had the effect of removing or materially mitigating noises in the ear. This experience agrees with that of Politzer, expressed in his "Text-book of Disease of the Ear."

The *bromides*, especially bromide of potassium, have been, in my practice, more serviceable than hydrobromic acid. In doses of from half a drachm to a drachm at bed-time, bromide of potassium has not infrequently a distinctly mitigating influence upon the noises.

Pilocarpine, employed hypodermically, is undoubtedly useful in a certain proportion of cases. In my hands this remedy has been strikingly successful in several cases, although, alas! like other remedies for the relief of tinnitus aurium, it often fails. I believe it is only useful in recent and minute hæmorrhages into the cavities of the labryrinth, but fails if the hæmorrhage is extensive—because in this case, as might be expected, the delicate structures of the labyrinth are destroyed beyond the power of recovery, even after the effused blood has become absorbed. As to the explanation of the therapeutic action of pilocarpine, we can only assume that it has an especial power of stimulating the absorbents in contact with the effused products before these have become organized, and that this resorbent effect has also some connection with its remarkable powers of exciting the cutaneous and salivary secretion. It seems to have an especial action upon the intracranial absorbents, and we know that the vascular and lymphatic supply of the labyrinth is in reality the same as that of the interior of the cranium.

We are all familiar with the fact that *quinine* has an influence upon the circu-

lation of the ear, especially of the internal ear, and that noises in the ear with impairment of hearing are frequently set up by this drug. There can be no doubt, however, that in the cases I am referring to large doses of quininine (5 to 20 grains)not infrequently exercise a beneficial effect. How this is brought about it is not easy to say ; further and careful clinical observations are required before a decision can be arrived at in regard to the exact position of quinine as a remedy in these forms of tinnitus aurium.

I do not think that it would be profitable or interesting if I were to discuss the merits of all the multifarious medicinal remedies proposed and used for the relief of noises in the ear. Unfortunately, the weapons taken from this well-stocked therapeutic armory are too often feeble and inefficient.

On the merits of nitrite of amyl, strychnine, arsenic, digitals, nitro-glycerine, ergotine, convallaria, chloride of ammonium, etc., we need not descant. I trust that out of the wealth of your experience we may to-day add to our knowledge of the true position of some of these remedies. Neither need I point out the necessity of employing appropriate hygienic and dietetic treatment, if any departure from the healthy condition is manifest; nor of the importance of mercurials, laxatives, and salines, if the hepatic or stomachic functions are disturbed; nor of the value of ferruginous tonics in anæmia, and anti-syphilitic remedies where a specific origin is clearly traced. These considerations are so self-evident that their discussion by me would be quite superfluous. — *British Medical Journal.*

DEAF-MUTISM AND CONSANGUINEOUS MARRIAGE.

BY CHARLES WARDEN, M. D., F. R. C. S. ED.,

Senior Honorary Surgeon to the Royal Institution for the Education of Deaf and Dumb Children, Birmingham, and to the Birmingham Ear and Throat Hospital.

Being connected with the Royal Institution for the Education of Deaf and Dumb Children in Birmingham, I thought it possible that I might lay before the Association some important facts and statistics which would be of interest to the members. This institution has been established upwards of seventy-four years, and is the oldest but one in England; although it is known as a Birmingham charity, its area of usefulness extends all over England. The number of children in the institution is 136—boys 75, girls 61; and there are now at least fifty in the town waiting their turn to be admitted. Additions are being made to the institution, and it is hoped the accommodation will then meet that requirement.

The condition of an uneducated deaf-mute is, indeed, a sad one. He is cut off from all familiar sounds; shut out from all participation in the intelligence of the world; excluded from the greater part of the pleasures and pursuits of life. What is more awful still, the social and intellectual degradation of uneducated deaf-mutes is thrown into the shade by the darkness of their spiritual state. The deaf and dumb have intellectual faculties, especially the faculties of observation, memory and comparison, and under education these faculties become capable of great development.

It is a great satisfaction to learn of the appointment of a Royal Commission to inquire into the condition and means for the education of the deaf and dumb

and the blind, and it is hoped that its labors will result in state aid to existing establishments engaged in the education of these classes.

The number of males exceeds that of females in deaf-mutes—that is, in the civilized world. In European countries Netherlands bears the smallest proportion (three mutes to 10,000); Switzerland the greatest (Berne, 54 to 10,000); entire average, 24 to 10,000; in some districts, 50 to 10,000); Belgium, 4 to 10,000; Great Britain, 5 to 10,000; Denmark, 6 to 10,000; France, 6 to 10,000; Spain, 6 to 10,000; Italy, 7 to 10,000. United States are below the average. Above averages are Germany, 9 to 10,000; Austria, 9 to 10,000; Hungary, 13 to 10,000; Sweeden, 10 to 10,000; Norway, 9 to 10,000. In German States the number of deaf mutes is larger than that of blind; whereas, in most other countries blindness occurs more frequently than deaf-mutism. In Switzerland the number of deaf-mutes is three times that of the blind; there are more deaf-mutes in mountainous districts, more blind in lowlands. In Bavaria, where infant morality is exceedingly high, there are few deaf-mutes; in parts where it is moderate deaf-mutes are numerous—accounted for, possibly, by earlier deaths.

The deaf-mutes of Martha's Vineyard, who have attracted considerable attention in America, come chiefly from the town of Chilmark, containing a population of 500, of whom twenty are deaf-mutes, one in 25. The cause of the prevalence is not established beyond question; the probability is they are descended from common ancestors. The facts obviously illustrate the tendency of deafness to perpetuate itself in certain families, and the increased intensity of this tendency when members of those families marry one another.

The Spartans doomed all deaf and dumb children to death, and compelled their parents to cast them into the fœtid caverns; the Romans looked upon them as the scorn of mankind. The Justinian code condemned them to one ignominious state of imbecility.

It is very probable that the work published in 1620 — upon which the existing French and American systems of deaf-mute education are based — originated with a Benedictine monk in Spain, in the sixteenth century, named Pedro Ponce, who was the first practical teacher, and was modified by Bonet. In England the first to call attention to the subject was John Bulwer, in 1648.

The learned Bede, who died A. D. 735, recorded a case of deaf-dumbness in a youth, who had been taught to speak; then Rudolph Agricola, who died in 1485, had an idea of the possibility of teaching the deaf and dumb.

Deafness is not strictly a hereditary disease, though parents do have deaf children; when parents are both innately deaf it is extremely probable that their offspring will be naturally deaf; and if the children marry others naturally deaf, their offspring will be similarly afflicted; but if the deafness has arisen from an accidental cause, and there is no consanguinity or struma, then probably all their children will be perfect. Sometimes alternate generations will be affected; at others two generations are skipped, and it appears in a later one. The proportion is 80 per cent. congenital to 20 per cent. acquired.

When a number of children are born deaf in one family, heredity plays a part in its production; in such cases one must look for the causes in ancestry.

In regard to the second query, it is reasonable to assume that in the ancestors of a large number of unrelated deaf-mutes, light might be thrown upon the origin of deafness by a comparison of genealogies. Boudin especially considered that the marriage of blood-relatives favors the occurrence of deaf-mutism, blindness, mental diseases and great mortality amongst children. In Paris it produced 28 per cent., and in Bordeaux Institution one-third. Perrin found 25 per cent. in Lyons.

The consanguinity of parents (first cousins) is a cause. Two twin brothers married two sisters (cousin german); the elder had several children, one deaf

and dumb; of the younger six children, three can hear, three cannot.

Fright and strong mental morbid impressions on the part of the mother during pregnancy are among the physiological causes.

Organic defects is a pathological cause. In my own practice at the Birmingham Ear and Throat Hospital, and also at the Orthepædic and Spinal Hospital, I have had numerous instances of the effect of mind upon matter in producing deaf-mutes, and especially of congenital deformities.

Organic Defect, the Chief and True Pathological Cause.— In every case of congenital deafness the deficiency is owing to some lesion, either in the mechanical or sensitive portion of the auditory apparatus of the brain. The abnormal conditions are total deficiency of the external auditory meatus, adventitious growths filling up the cavity of the tympanum, the Eustachian tubes, mastoid cells and other foramina of the tympanum, absence of ossicula or ankylosis of them, deficiency or enlargement of the fenestra rotunda, spiral canals of the cochlea or aqueduct of the vestibule; obliteration of semicircular canals; preternatural density of petrous portion of temporal bone; defects of the labyrinth; atrophy of auditory nerve. Dr. Itard considered that nerve-deafness arose from paralysis of the labyrinthine nerve. Mr. Pilcher, whose pupil I had the honor, pleasure and satisfaction of being, taught that, in a majority of cases he examined, the cause is not demonstrated to account for the loss of function. Post-natal deafness arises where inflammation, ulceration or paralysis accompany or supervene upon diseases, such as sacarlatina, typhus, small-pox, measles or convulsions—more from sacarlatina than any other; and, last, also diphtheria.

Other Causes.— Then while congenital deafness is principally caused by transmission from parents, under circumstances not yet fully understood, acquired deafness is brought about by diseases which destroy the organs intended for the perception of sound. The great majority of these diseases do not originate in the organ of hearing, but the deafness in most cases is caused by inflammation of the brain and its membranes, as also by general diseases which affect the ear—in which case the inflammation seems to affect the auditory nerve and labyrinth.

After brain disease, scarlet fever ranks second among the causes of acquired deafness; other zymotic diseases, third; injuries, etc., fourth.

Cerebro-spinal meningitis is another fertile source. In Prussia 278 deaf-mutes were produced by it. Erhardt was of opinion that the diseases produce hæmorrhage in the labyrinth, but this assumption is not borne out by *post-mortem* examinations.

In chronic inflammation of labyrinth hyperæmic swelling, fatty degeneration, atrophy of the membranous labyrinth, changes and deposits in the labyrinthine fluid take place. Naso-pharyngeal catarrhs are almost common causes of deafness.

Our knowledge of the anatomical changes in deaf-mutism are inexact and incomplete. We have no *post-mortem* records of deaf-mutes that were the offspring of consanguineous marriages, or who had inherited the defect; it would be of the greatest importance to learn on what organic conditions these causes depend. They are classed as malformations, anatomical abnormalities in the middle ear, in the labyrinth and auditory nerve, and in the brain.

Deafness and Blindness.—Prussia (1871 census) showed 201 deaf-mutes and blind out of 23,000. In Bavaria, in 4,348 deaf mutes there were 23 blind. In the year 1840, in Sweeden, in 2,100 deaf-mutes there were 90 blind. Diseases of the eye not unfrequently accompany those of the ear, especially in strumous constitutions. The exanthemata, small-pox especially, cause affections of both eye and ear simultaneously.

Rentinitis pigmentosa is either congenital or occurs in childhood. Hereditary predisposition and the blood relationship of the parents are the

principal causes of its occurrence. According to Leber, these causes can be traced in one-half the cases, hereditary predisposition being the cause as frequently as consanguinity of parents. Liebreich was the first to draw attention to the simultaneous occurrence of retinitis pigmentosa and deaf-mutism, and from his investigations come the following conclusions:

1. That retinitis pigmentosa occurs very frequently in deaf-mutes

2. That a simultaneous occurrence of both defects is chiefly observed in Jewish children (Liebreich was a Jew).

3. That in the majority of the children thus affected, the defects are due to the consanguinity of the parents. Liebreich examined 241 deaf-mutes, and found 14 with retinitis pigmentosa. The result of only one *post mortem* examination of a case of deafness associated with retinitis pigmentosa was reported by Lucæ, in which large quantities of calcareous concretions were discovered in both vestibules, and both vestibules were partially sclerosed, probably the remains of inflammation of the labyrinth in early childhood.

4. Cerebro-spinal menengitis is also a fertile cause of deafness. Of 77 pupils in the Pennsylvania Institution, 66 were cases of adventitous deafness, 18 having lost the hearing by cerebro-spinal meningitis. In Lackawana 85 per cent. are caused by this disease.

With regard to blood relationship of parents, Devay mentions an instance observed by Menière. Married cousins had eight children: four deaf-mutes, one idiotic, one died of encephalitis, two perfectly deaf. Mitchell computes that, if a deaf-mute marries a healthy person, the chances of a deaf-mute offspring are as 1 to 135; if two deaf-mutes marry, 1 to 20. If a deaf-mute marries a healthy cousin, he is in the same danger as if he had married a deaf-mute outside his family. If the cousin he has married is also a deaf-mute, the union is most dangerous.

Alexander Graham Bell has written a memoir on the formation of a deaf variety of the human race. Dr. Bell does not advocate legislative interference with the marriage of the deaf-mute, for several reasons, one of which is that the results of such marriages have not yet been sufficiently investigated. While Dr. Bell's statistics do not establish the probability of the formation of a deaf variety of the human race, they certainly prove that heredity is a very important element in the cause of deaf-mutism. The principle of heredity is clearly proved by the large number of deaf mutes who are related by blood to each other; 295 in 1,000 had one or more deaf-mute relatives in six American schools. Dr. Bell gives statistics of some families in the United States that have become famous in the annals of deaf-mutism for the large number of deaf-mutes they contain — the Browns of New Hampshire having deaf-mutes in four consecutive generations, and numbering 34 such cases; the Hoaglands of Kentucky containing 21 deaf-mutes in three consecutive generations; and a group of ten families in Maine, not known to be connected, contain 105 deaf-mutes. Dr. Bell's statistics show that many married deaf-mutes have no deaf-mute children, but they also show that the proportion of deaf children with deaf parents is far greater than with hearing parents.

Another curious fact shown by Dr. Bell's statistics is that the proportion of deaf mute children is greater when one of the parents is deaf and one hearing than when both parents are deaf. Although the statistics of heredity are too limited and incomplete to form positive conclusions, the following seem probable:

1. Deaf-mute relatives marrying deaf-mute relatives are likely to have deaf-mute children.

2. Congenital deaf mutes marrying each other, especially if either have deaf-mute relatives, are likely to have deaf-mute children.

3. The adventitiously deaf, and not having deaf-mute relatives, marrying

each other, are not likely to have deaf-mute children.

4. Deaf-mutes, whether congenital or adventitious, not having deaf-mute relatives, and marrying hearing persons who have not deaf-mute relatives, are not likely to have deaf-mute children.

In conclusion, it appears self-evident to my mind that segregation is the remedy for anything approaching this condition.—*British Medical Journal.*

SENSIBILITY OF THE SKIN.

It is a matter of general surprise that would-be suicides are not disuaded from cutting their throats by the intense pain naturally considered inherent in the tissues.

In searching for the explanation of this fact, Prof. Brown-Sequard has proven that the slightest incision in the cervical region immediately destroys the sensibility of the anterior half of the neck, in all of its thickness; and also a sudden mechanical irritation of the skin of the neck and larnyx causes a paralysis of the great nerve centers, and consequent cessation of respiration and circulation.

In this way death by hanging, without suffocation, can be explained.—*Archives, Generales de Medicine.*

CLINICAL NOTES.

PNEUMONIA, WITH SEPTIC LEPTO-MENINGITIS.

[From Cook County Hospital. Reported by the Internes.]

CASE I.

F—— B——, aet., 23 years; occupation, laborer. Had been sick 11 days before admission to the hospital. Admitted Nov. 7th. Died Nov. 14th.

No family history. No venereal history. Has been a dock hand, and confesses to have been a moderate drinker. Was sick in St. Louis two years ago with intermittent fever, and has not been well since then, suffering from time to time with neuralgia and dyspepsia. His present illness commenced 11 days ago with sudden and severe pain through head and chest. Following that, for three days, were severe rigors, followed by fever, vomiting and exacerbations of the headache. Since his illness commenced he has suffered from entire loss of sleep and from constipation, his bowels not having moved for four days.

Examination of the patient revealed equally contracted pupils, no paralysis of the extremities, retracted abdomen, with slight amount of gurgling in both *iliac* fossæ; the tongue and lips were dry, harsh and coated; there was cutaneous hyperæsthesia strongly marked, especially over abdomen and thorax; the temperature on admission was 103° F.; respiration 32; pulse 84, and full; urinalysis showed a specific gravity of 1032, with a trace of albumen, but no sediment. The patient lay in a stupor, from which he could be easily aroused to intelligence, but always with an uneasy expression of pain. When aroused he would immediately complain of great pain in the head. He had also a short, dry cough of an apparently nervous origin. Any attempt at a physical exploration of the thorax was resisted by the patient with renewed complaint of pain.

Probable diagnosis: Acute lepto-meningitis. Treatment: Ice cap to head. Antipyrin, grs. xv. when the temperature exceeded 102°. Bromide and iodide of potassium in moderate doses at first, then pushed. Fluid extract of ergot in ʒss. doses. Magendi's solution p. r. n. to relieve pain. Cathartics, at first mild, then enemata and fortified oil (ol. ricini ʒi, ol. tiglii gtt. i.) when bowels failed to respond to gentler measures. The progress of the case was unfavorable. The range of temperature was from 99° to 105°; the latter was reached just before death. No evening exacerbation. The pulse ranged between 90 and 120, becoming imperceptible at the last. Respiration ranged from 30 on admission to 64 just before death, and was labored, with marked stertor during the latter days. During the night there was at first muttering, delirium, and at times stupor. Toward the last he became comatose. The pupils

were dilated before death. There were involuntary evacuations of rectum and bladder for some time preceding the termination of the case. No paralysis of motion or sensation was observed except in parts supplied by the cranial nerves. He moved aimlessly from time to time, even just before death.

Post-mortem 20 hours after death. Rigor decided. Abdomen retracted. No external markings. Body emaciated. Heart normal.

Lungs: Adhesions over both apices. Lower lobe of left lung is in a condition of red hepatization, with small insular patches of gray hepatization commencing.

Spleen: Liver and kidneys are a trifle soft and swollen.

Stomach and intestines not opened.

Head: Sinuses of the dura mater are more than usually full, but without thrombi. On opening the dura the convolutions of the cerebrum are seen to be more than usually flattened against the dura. There is no excess of fluid in the sub-dural or sub-arachnoid spaces. The pia mater of the convexity is deeply congested, and in the larger sulci there is a large amount of fibrinous effusion. On examining the base of the brain the following appearances were observed: For a distance of 8 cm. from the optic chiasma backwards, below medulla, and between the bases of the cerebellar lobes, and extending in width 3 cm. either side of the median line, there is creamy, semi-solid exudate, involving the infundibulum, perforated spaces, optic tracts, cerebral peduncles, pons, medulla, and the superficial roots of all the cranial nerves. Exudate is entirely beneath the pia, not involving the dura or nerve sheaths, or the bony structures of the base of the skull.

The base of the left middle lobe is soft to the touch, and fluctuation can be elicited at any point over the area of softness.

Incision through corpus callosum into right lateral ventricle discloses a small amount of slightly turbid fluid, not distinctly purulent. Brain substance is not softened.

Incision into left lateral ventricle shows the ventricle to be enlarged and filled with thick greenish pus, similar to that noticed at the base. The exudate communicates through the infundibulum with that at the base. The choroid plexus is covered with pus and the walls of ventricle are softened. The spot of softening felt from without is found to be due to the extension of the softening and suppuration from the ventricle into the brain substance. Both basal ganglia are soft. The third and fourth ventricles are filled with pus and the walls are softened.

Microscopical examination reveals copious exudation of leucocytes into pia mater and into gray and white substance of all structures involved.

SARCOMA OF FEMUR: AMPUTATION.

CASE II.

G—— S——, aged 18 years, was admitted on November 10th, with painful swelling of the left knee. The patient's general health and family history are good. He gave the following history:

Six weeks before admission, he fell through a hatchway, striking his left knee. It became swollen and painful, but not enough so to keep him from walking about the house. In two weeks he resumed work, though the knee was not strong, and he worked only one day on account of pain experienced. From that time until his admission into the hospital it had grown steadily worse, and for a week before admission he was unable to use the limb at all. On examination the leg was found to be considerably flexed, but by careful manipulation it could be nearly straightened without pain. The knee was swollen, particularly at its outer and upper aspects, where it was also extremely tender. Exploratory puncture revealed blood and shreds of tissue, which were not examined microscopically. The patient suffered greatly, and the tenderness became more diffused, though neither swelling nor tender points could be discovered below the patella.

November 21st, the limb was suspended and a Martin's bandage applied. Extension with weight of four pounds was used.

November 26th, a cachectic appearance of the patient was observed. By December 3rd, swelling had extended five or six inches up the thigh.

December 4th, an exploratory incision, four inches long, over the outer condyle revealed large masses of morbid material and a large cavity in the femur filled with similar masses. There was no effusion into the joint, and no erosion of the cartilages, but the femur was roughened as far as the finger could reach. A circular amputation in upper third of thigh was made at once.

On December 5th there was considerable oozing; the dressing was changed and the lower drainage tube was removed.

On December 8th the last drainage tube and the sutures were removed.

December 21st, the patient was up and moved about on a wheel-chair. His highest temperature had been 99.5°F.

December 23rd, the patient evidently has been greatly relieved by the amputation, but the cachexia still continues and seems to be increasing.

Examination of the specimen discloses marked proliferation of cartilage and connective-tissue, especially in the vicinity of external condyle. In the cartilage are found numerous spicules of bone. Attached to the lower anterior external surface of the bone and extending into the neighboring tissues without distinct encapsulation is a moderately soft, fleshy mass about the size of a duck's egg. Numerous blood-spaces are enclosed in this mass. Beneath this new formation the bone is found to have been absorbed, and examination discloses the medullary cavity of the bone filled with a soft, pulpy sanguineous material in which the microscope reveals blood, fat, multiform and multinuclear cells. The knee-joint has not been invaded by the new formation.

Microscopical examination of sections removed from various portions of the

tumor and its surroundings shows plastic inflammation of all the neighboring structures resulting in proliferation of cartilage, bone and connective-tissue. Characteristic sarcoma-structure is found throughout the new formation and also in fresh specimens removed from the medulla.

INJURY OF THIGH AND CONTUSION OF BACK.

CASE III.

J—— K——, aged thirty-four, laborer. The patient was brought to the hospital by patrol about 9:30 A. M., suffering with a crushing injury of his right leg as far up as the knee, a railroad engine having passed over it. A contusion of the back was also found. He was almost exsanguinated, the patrolmen not having correctly applied the rubber constrictor. His pulse was 160 and very weak. He was pale, very thirsty, and at times unconscious.

Digitalis, aromatic spirits of ammonia, and whisky were administered without avail. At 11:30 A. M., as he did not improve, infusion was deemed advisable. The median basilic vein was opened and a warm saline solution injected, consisting of sodium chloride, 6 parts; sodium bicarb., 1 part; aquæ dest., 1000, at a temperature of 100 deg. F. Eight ounces of this solution were used. Only slight improvement was noticeable in the pulse after the infusion, owing probably to the small amount of fluid injected. An Esmarch's bandage was applied to the crushed tissues, as far as to the healthy, and remained in place until the following day (1:30 P. M.), when the limb was amputed at the junction of the lower with the upper two-thirds of the thigh and dressed in the usual way. The patient did not do well for two weeks, the flaps sloughed, permitting the bone to protrude. He complained much of pain in the back. The temperature ranged during this time between 99.5 deg. and 102 deg. F. At the end of this time an abscess was discovered in the small of the back. It was opened and drained. The temperature immediately subsided, and did not rise again above 99 deg.; his appetite increased and he improved in every way.

December 7.—Re-amputation of bone, removing about an inch and ahalf.

December 22.—The stump is nearly healed; an ulcer, size of a half dollar, remains, and is studded with healthy granulations.

A CASE OF PUERPERAL ECLAMPSIA.

INDUCTION OF LABOR.—RECOVERY.

CASE IV.

H—— G——, white, single, aged 25 years, and of Swedish descent was admitted to the obstetrical ward of the hospital, October 17th, 1887.

Her family history is good; there are no neurotic tendencies. The patient had been troubled with dysmenorrhœa, probably obstructive, for 10 years previous to the date of her last menstruation, on February 10th, 1887.

During the greater part of her gestation she was a sufferer from headache, backache, anorexia, neuralgia and general weakness, which at times necessitated her keeping her bed for several weeks.

About September 1st, she noticed that her face, and, at times, her hands, were puffed after lying down. During September and October she suffered from severe morning vomiting and coronal headache; and experienced several "spells," one of which was attended with unconsciousness, which was relieved only by venesection.

October 24th. Urine: yellow, acid, sp. gr. 1003, trace of albumen. Amount passed in 24 hours, 50 ozs., containing 165 grains of solids.

Ordered: Hydrarg. bichlor, gr. $\frac{1}{24}$, Potass. Iod. grs. X. 3 times daily, with Tr. Ferri chloridi M xv and Sp. Frumenti, ʒss, after meals.

November 3d. Urine: yellow, acid, sp. gr. 1010, no albumen, amount for 24 hours, 80 ozs., containing 880 grains of solids.

After her admission into the hospital she had several attacks of syncope, of which she afterwards had no recollection.

November 15th, at 10 P.M., she had a typical eclamptic seizure. She was unconscious for two hours.

February 16th. She was very nervous and apprehensive. Efforts at vomiting had been so constant and so severe that she was quite exhausted—merely touching the cervix would excite nausea. It was then decided to induce labor, chloroform was administered and with fingers os uteri was forcibly dilated and the membranes ruptured. A vertex presentation in the third (O.D.P.) position was diagnosed.

Miller's forceps were applied, and the child delivered in 25 minutes. Good retraction was secured by the administration of ergotin, gr. iii, hypodermatically.

The perinæum was lacerated down to sphincter ani, and coaptated with one internal continuous catgut and five external silk sutures, which were removed on the 8th day when union was perfect.

The child was a male, vigorous and weighing seven pounds; it was completely resuscitated in 15 minutes. Four convulsions occurred during the puerperal period, two of which were controlled by morph. sulph. gr. ¼, administered hypodermatically. Two were attended with unconsciousness, when morphia sulph. gr. ½ was administered and followed by fl. ext. pilocarpine ọss. which produced free diaphoresis with subsidence of all unfavorable symptoms. November 24th. Urine:—Deep yellow, acid, sp. gr. 1025, trace of albumen. 32 ounces passed in 24 hours, containing 880 grains of solids. The hydrarg, bichlor. and the potass. iod. were discontinued, and potass. acet.,

grs. xxx, with potass. et sod. tartras xi. to be given every four hours was ordered. The usual strict antiseptic precautions now in practice in the obstetric ward were observed throughout the management of the case. The temperature at no time exceeded 99.8° F. Her bowels were moved daily by a glycerine and water enema, or by some mild laxative. The severe headaches were relieved by 15 grain doses of antipyrin. After the last convulsion the patient improved rapidly. Her supply of milk was scanty, and as she could not keep the child, its secretion was suppressed by the application of ungt. belladonnæ and uniform compression to the breasts.

December 12.—She has good appetite, sleeps well, is gaining flesh rapidly and feels perfectly well.

REPORT OF THE PROCEEDINGS OF THE ILLINOIS STATE BOARD OF HEALTH.

QUARTERLY, MEETING, CHICAGO, OCTOBER 18, 1887.

The regular quarterly meeting of the Illinois State Board of Health was held in this city on October 18, 1887.

Drs. W. A. Haskell, President, Newton Bateman, A. L. Clark, W. R. Mackenzie, H. V. Ferrell and John H. Rauch, Secretary, were present.

The Secretary presented the following

QUARTERLY REPORT.

During the quarter ended September 30, 1887, there were received in the Secretary's office 1,798 written communications of all kinds, and a total of 1,050 were sent out. Of printed matter there were distributed 143 copies of the various Annual Reports, 47 Official Registers, 24 copies of Report on Medical Education, 7,200 copies of Report of Proceedings of July, 1887, Meeting of the Board,—which contained also the new law regulating the practice of medicine, in force July 1, 1887,—and the usual number of the various publications of the Board, preventable disease circulars, etc.

CERTIFICATES AND LICENSES.

There were issued 103 certificates to physicians during the quarter; 84 to graduates upon diplomas from medical colleges in good standing; 1 upon examination; 14 to non-graduates upon proof of ten years' practice in the State prior to July 1, 1877, and 4 duplicates upon proof of destruction of the originals. Certificates were also issued to twenty-five midwives; 10 upon diplomas or licenses, 12 upon examination and three upon years of practice.

The unusually large number of certificates issued—greater than ever before during the third quarter of any calendar year since the Board was organized—is due to the operation of the new medical practice act, which has brought all physicians under the provisions of the law, without regard to length of practice in the State. Of the 103 certificates issued no less than 38 were to practitioners previously exempt—24 to graduates and 14 to non-graduates who were not required to take out certificates under the act of 1877. More applications for certificates (60 in all) have also been deferred for the action of the Board, or definitely rejected, than during any corresponding period since 1878. This result was to be expected, since the great majority of skillful, qualified physicians had complied with the law of 1877, and were already duly certificated. While there were a number of physicians of the same reputable character and attainments as these in the small minority remaining, there were many of a very different class, who were exempted from supervision by the ten-years' prior-practice clause of the old law. These are now required to hold the certificate of the Board as a guaranty of their moral and professional fitness to practice medicine, and it is mainly from these that the rejected or deferred applications have come. These applications have been deferred or rejected because the applicants are unable to comply with the law.

THE NEW MEDICAL PRACTICE ACT.

Although entailing an immense amount of detail labor, and giving rise to many perplexing questions, the results of the operation of the new act to regulate the practice of medicine thus far have been fairly gratifying. A number of suits for violation of its provisions have been brought locally against quacks and other disreputables. In eleven of these the suits have been pushed to a successful conclusion.

One of the most signal benefits of the new law has been already demonstrated in practically ridding the State of the itinerant nostrum venders. At the close of the quarter there were only two of this class of charlatans left in the State, and the necessary proceedings have been already begun to secure their conviction or compel them to abandon Illinois as a field for their efforts.

MEDICAL EDUCATION.

The revision of the Report on Medical Education is almost perfected, and the tables and conclusions will be submitted for the information of the Board during the meeting. A period of ten years is now covered by this report, and the data concerning 258 medical colleges of all classes and

an aggregate of over 116,000 medical students, including some 37,000 graduates, are embraced in its successive editions.

One of the most striking features elicited by this research and its mass of facts and figures is the cumulative evidence afforded of the influence of the action of this Board upon the subject of medical education throughout the United States. In 1880 the Board announced its adoption of a Schedule of Minimum Requirements, compliance with which schedule should be the condition of "good standing" of any given medical college after the sessions of 1882–83. At the former date, 1880, the percentage of graduates to matriculates was about 35; it has now fallen to 30.5. The improvement is even more marked in the regular schools in which during the sessions of 1881–82, immediately following the announcement of the Board, the proportion of graduates to matriculates was 35.8 per cent. During the last sessions this percentage was 28.8—showing an improvement, numerically expressed, of over 18 per cent. in this respect.

These changes are still more significant when it is considered that the exaction of a preliminary education and the longer term of study, attendance on clinics, laboratory work, etc., have excluded, on the one hand, a large number of those primarily unfit for the study of medicine, and, on the other hand, have given the graduates a more thorough training and higher qualifications for the practice of their profession. The extent to which this process of exclusion of the unfit has been carried is shown in the total numbers of those engaged in the study of medicine in 1882–83 and in 1886–87, respectively. During the first-mentioned period there were 13,088 matriculates reported at the various colleges. At the last sessions, notwithstanding the growth of population, there were only 12,939 in attendance. Other figures show equally gratifying improvement in other directions.

THE PUBLIC HEALTH.

Since the last meeting of the Board, the matter of greatest moment to health officials and health boards everywhere in this country has been the arrival of the cholera-infected steamer *Alesia* at the port of New York on September 25th. With the general facts concerning this arrival, and the action of the New York quarantine officers in the premises, the Board and the public have been advised by the daily press. It is too early to assert that all danger is now past from this arrival. So far as the developments go, the occurrence is a sufficient justification of the action of the Board in empowering its secretary, more than two years ago, to make an inspection of the quarantines maintained on the Atlantic and Gulf coasts with the especial reference to the exclusion of Asiatic cholera and small-pox. In the introduction to that report, made early in 1886, it was said that "these outer lines, even with some defects and weak places, I believe to be even now sufficiently strong to keep out the disease if proper vigilance and thoroughness be exercised, if all the facilities be utilized, and if timely notification of threatened danger be given by the National Government.

"The next year or two, however, will furnish a tolerably conclusive test of the efficiency of quarantine to exclude the pestilence from this country."

More than a year before this report, in an address at the opening of the National Conference of State Boards of Health, held in St. Louis, October 13, 1884, it was urged that "Congress should give the President the power to issue a proclamation, upon the recommendation of the National health authority, forbidding immigration into the United States from infected districts of other countries, and it should provide some method of international sanitary co-operation between this country and the Dominion of Canada, whose interests are substantially the same as ours in these matters, and whose contiguity makes co-operation of vital importance."

These important matters are yet neglected, and there is not any provision for timely notification of threatened danger by any National authority.

The *Alesia* arrived at a port where the quarantine regulations require every foreign arrival to be boarded and inspected before allowing the vessel to proceed to her dock. The existence of the cholera infection was thus promptly ascertained on this vessel, and the proper steps were at once taken to segregate the sick from the well, to place these latter in a quarantine of observation, and to isolate the former so as to prevent any spread of the disease from existing cases. Meanwhile approved disinfecting and cleansing processes were applied to the vessel, to the dunnage and personal effects of the crew and passengers, and to other material susceptible of being fomites.

That these precautions were imperatively necessary is shown by the continued development for fully two weeks of new cases among the apparently healthy isolated on Hoffman's island. Notwithstanding all the precautions which were observed, the disease continued to attack people removed as far as possible from all

known sources of infection during a period of fourteen days.

Can it be doubted that, had the English theories of cholera and of quarantine obtained in New York harbor during the past few weeks—can it be doubted that these twenty-six cases or a large proportion of them would have been scattered throughout the country, each one to form a possible epidemic center? It is, of course, this consideration which excites our interest in the administration of the coast quarantines.

Dr. W. M. Smith (health officer at the port of New York) is believed to have been prompt, explicit and candid in his telegraphic statements, and this belief has reassured the whole country. The interior has assumed that everything known to the best modern sanitary practice of quarantine was being enforced to prevent the cholera poison obtaining a foothold upon our shores.

But it must not be forgotten that there is no legal obligation on the part of Dr. Smith or of any other health officer to take such action in the interest of any but his own port and territory.

In this connection it is proper to state that Dr. Montizambert, in charge of the Grosse Ile quarantine below Quebec, writes the Secretary under recent date, forwarding a printed copy of the revised quarantine rules and regulations now enforced on the St. Lawrence, from which it is seen that the recommendations—as to quarantine practice, equipment, appliances, etc.—made in the report already referred to have been substantially adopted and carried out. This action materially increases the efficiency of one of the important safeguards of the interior, and there is no impropriety in citing it as one of the direct results of the quarantine inspection authorized by the Board in 1885.

In view of the manifestations of this pestilence during the past few months upon the Italian peninsula and in the Mediterranean, and the as yet uncontradicted assertion that it has re-appeared in South America, everything pertaining to our coast defenses against introduction of the disease is of very vital interest.

[During the session of the Board, information was received of the development of four cases of cholera upon the *Britannia*, a sister steamer of the *Alesia*. She arrived in New York bay on the 13th, and was detained at the upper quarantine station for observation until the 18th, when the disease was positively indentified, and the vessel was at once taken down to the lower station to be treated as the *Alesia* was.

This second arrival suggests the danger threatening the country from vessels sailing from ports of the infected Mediterranean to American ports, where no facilities exist for quarantine of observation, issolation, etc.]

The outbreak of yellow fever at Tampa and elsewhere in Florida have fortunately occurred too late in the season to give rise to much solicitude. The chief danger lies in the want of efficient health organizations throughout the territory affected, and the consequent probability of neglect to properly deal with infected material and localities. Such neglect may give rise to other outbreaks, or even an epidemic next year.

Although the public health of Illinois and the country generally has remained in a fairly satisfactory state, conditions obtained during the past summer, which caused grave solicitude. The intensely hot weather of July and the prolonged drought were among the more important of these. The great prevalence of diarrhœal diseases and numerous outbreaks of typhoid fever—the former directly due to the high temperature, and the latter intensified by water supplies, affected by the drought—were ominous of the results which might be anticipated if the specific poison of Asiatic cholera should be introduced. Fortunately this calamity was escaped, and the approach of cold weather assures us a further season of probable immunity from a cholera epidemic.

The only other noteworthy feature of the past quarter in this relation has been an extension of diphtheria—in many cases very malignant and fatal.

* * * * * *

CHICAGO MEDICAL SOCIETY.

STATED MEETING, OCTOBER 27, 1887.

The President, W. T. Belfield, M. D., in the Chair.

Professor E. Fletcher Ingals reported a case of

RETROPHARYNGEAL ABSCESS

of unusual interest, on account of the deep fistulous tract which remains, and as an illustration of the necessity for prompt incision for the evacuation of pus in cases of retropharyngeal abscess.

Mrs. H. P., æt. 44, was sent to him during the month of August from a neighboring state for an opinion. She complained of an oppressive, purulent discharge from the pharynx, with more or less pain between the shoulders, cough and night sweats. She stated that the discharge would occur every few days, and that afterwards she would be free from cough, pain or other annoyance for some time, when the symptoms would again come on gradually, and increase steadily until another evacuation of the pus occurred.

Six months before coming to see him, she had had soreness and swelling in the naso-pharynx. The swelling had gradually extended downward, causing more or less difficulty in swallowing and respiration, and had been allowed to take its course for two months, when an opening was made in the lower part of the pharynx, which gave vent to a large quantity of offensive pus. Subsequently the incision closed, was reopened twice, and finally it had remained patent. While the swelling was still in the naso-pharynx, she had for some time also a purulent discharge from the right ear. He found the patient anæmic, weak and emaciated, weight only 94 pounds, instead of 112 pounds, as when in health. Pulse 132. Her tongue was red and glazed in center, but her appetite was good. The cough was not constant, but it usually troubled her considerably every day. The pains of which she complained were not severe, and were confined to the chest and shoulders.

Upon examination of the chest no abnormal signs were found, excepting slight feebleness of the respiratory sounds over the lower third of the right lung. A mucous polyp half closed the right naris; the larynx was normal. When the tongue was forcibly depressed a little to the right of the median line, at the lower third of the larynx, a small red fungoid mass, about the size of a pea, could be seen. The vault of the pharynx was normal, and nothing else of an abnormal character could be seen. The fungoid mass was removed with a snare, and beneath it was found an opening about two millimeters in diameter, into which was passed a small elastic catheter, and gently pushed down a fistulous tract a distance of thirty centimeters, when she complained of its extremity causing her pain a little to the right of and below the right breast.

The position of the lower end of the fistula seemed in some way to account for the enfeebled respiration at the lower third of the right lung. The patient did not remain in the city, he, therefore, was unable to see her when there was pus in the cavity, and consequently could not determine the exact position of the lower end of the fistula.

He had recommended removal of the polypus and washing of the fistulous tract daily with carbolized water or peroxide of hydrogen through a catheter introduced to its bottom. The use of tonics was also advised. The result of the examination was communicated to her physician, but nothing further was heard of the case. Professor Ingals was under the impression that when the lower part of the sac was filled with pus it might be possible to detect it, and make a counter opening through the pleural sac, whereby constant drainage could be established so that healing of the fistula might be effected.

Professor F. O. Stockton said: "This sequel of a retropharyngeal abscess is something a little out of the ordinary run. In his experience he had

never met with anything that produced any such symptoms, although he had frequently met with fistulas resulting from a retropharyngeal abscess. The case was interesting as showing what may occur when an abscess of this kind is not recognized in time. Abscesses are liable to burrow deeply, and in a location like this, where the soft tissues overlie a hard, bony substance, an abscess with a tendency to burrow could easily go very deep, and by pressing upon the nerves produce these pains; but it seems strange, unless the nerves were bare, that passing a small catheter down should produce these pains below the right breast. It looks as though some of the spinal nerves might have been laid bare by this burrowing of the pus. In a case of that kind, it seemed probable that what Professor Ingals had suggested was about the only thing that could be done, although one can hardly see how the opening he suggested could be made so as to give thorough drainage without injury to some nerve or other important structure.

Professor W. E. Casselberry said that the subject is one of interest for two reasons: *first*, retropharyngeal abscess is not a common disease, especially in the adult. It is oftentimes overlooked, and the responsibility rests upon the physician in all cases where there is dyspnœa, continuous or paroxysmal, to make a thorough examination of the throat both by inspection and palpation, in order to determine the diagnosis. *Secondly*, it is of interest on account of the peculiar complication in this case. He had seen the record of a similar case reported by Cohen among a number of cases of retropharyngeal abscess having some peculiarities. In Cohen's case a sinus burrowed deeply between the œsophagus and trachea, and finally pointed externally low down in the neck, and pus was evacuated by incision. On account of the loose connective tissue in this region and the influence of gravity, the natural tendency is for the pus to burrow downward, and other cases of the sort will doubtless be observed.

In reply to Dr. Strong, as to how he would make the opening suggested, Professor Ingals said he thought that when that sinus was filled with pus there might be a considerable collection—a pocket, perhaps, of a couple of inches in diameter—and if it was of that size, one could find the location and when found, he believed one could get an opening into it. He would not hesitate to plunge an aspirating needle into it, even passing it through the lung, if necessary. He was reminded of a case of an infant that he saw many years ago. He then thought the child had died of convulsions, but he thinks now that it died of retropharyngeal abscess. In young children sudden stopping of the breath occurs that seems as if from closure of the glottis, but there is none of the sound that occurs with spasm of the vocal chords. Recently a man of perhaps 50 years of age had been sent to him with a statement that he had stenosis of the larynx, and that something must be done. With a laryngeal mirror he examined his larynx, and found a large swelling in the pharynx, which one could see by depressing the tongue. It was a retropharyngeal abscess, which had existed four weeks. He swallowed with difficulty, but opening of the abscess relieved the dysphagia.

Albert B. Strong, M. D., reported two cases of

SUBPERIOSTEAL RESECTION OF A RIB FOR EMPYEMA IN CHILDREN; WITH RECOVERY.

He had within the past two years made subperiosteal resection of a segment of a rib for empyema in two young persons, one a boy of 6 and the other a youth of 17 years of age. The results had been so satisfactory that he desired to place the cases on record, particularly so since able authority has recently condemned the operation in children*.

CASE I. In May, 1886, he had seen in consultation with Dr. Charles Venn, of this city, a boy 6 years of age. The father, mother and other children of the family were pictures of perfect health. The boy was large for his age, and up to the time of that illness had always enjoyed the best of health. Four weeks prior he began to cough, and eight or nine days later evidences of an effusion into the right pleural cavity were manifest. In spite of appropriate constitutional and local treatment, the effusion increased, and when Dr. Strong saw him the chest cavity was completely filled. The boy was much emaciated with continued fever and night-sweats.

A hypodermic needle thrust into the chest just above the eighth rib in the axillary line revealed the presence of pus. Under ether the eighth rib was exposed through a parallel incision two inches in length. The periosteum, midway between the upper and lower border of the rib, was split in a longitudinal direction for the distance of an inch. By means of a blunt hook the periosteum and intercostal vessels were

*See an article by Dr. Garnett, of Washington, on "The Surgical Treatment of Suppurative Pleuritis in Children," published in *The Journal of the American Medical Association*, September 17th, 1887.

easily peeled off from the posterior surface of the rib, and three-fourths of an inch was cut away with bone nippers. This was done without wounding the intercostal vessels or pleura. Next, the internal layer of the periosteum was split to the same extent, and parallel to the external layer. The pleura was opened, when two quarts of laudable pus was evacuated. The chest cavity was immediately washed out with a warm saturated solution of boracic acid, and a large rubber drainage tube was introduced and retained in position.

The subsequent history was uneventful. He began to improve at once. The chest cavity was daily washed out with simple warm water. A wad of oakum was placed over the wound. The tube was kept in place six weeks, when the lung entirely expanded and the wound completely healed. Sixteen months after the operation, the boy is perfectly well. The right chest is normal like its fellow, in shape and function. There is but a small scar at the seat of the operation, and the rib has perfectly reformed in direction and shape.

CASE II.—A Norwegian boy, 17 years of age, always delicate, very thin and poorly nourished; six feet tall, pale and anæmic. His father, brother and one sister died of consumption. His mother is alive and doing well. The patient was first taken sick about March 10, 1887. The symptoms and signs indicated pleural pneumonia of the lower lobe of the right lung. In a few days he was convalescent.

On March 24 he had a relapse, and the right side of his chest slowly and intermittingly filled with effusion. He had night-sweats, diarrhœa and cough, and a temperature of 102° to 104° F. On April 24, about five weeks from the commencement of the effusion, empyema being diagnosed by the hypodermic syringe, with the assistance of Dr. Venn he removed, sub-periosteal, one and one-half inches of the ninth rib in the axillary line. Four quarts of laudable pus escaped. At the last about four ounces of clear serum passed out. The chest cavity was immediately washed out with a solution of boracic acid, and two large parallel rubber tubes with a drainage diameter of three-eighths of an inch each were introduced. These were held in position by a rubber shield and elastic bandage around the chest. The pleura was felt to be about three-fourths of an inch thick. During the next few days there were washed out large masses of lymph. Hot-water injections of two quarts at a time were used, night and morning. A wad of oakum was kept over the opening and changed often. The diarrhœa, sweating and cough began immediately to abate. The temperature in three days dropped to normal. On the first day of May, eight days after the operation, the tubes were crowded out. All the unfavorable symptoms had disappeared; he was eating and sleeping well. The opening on the inside was closed, as was then thought, by the expansion of the lungs; subsequently it was learned it was closed by the arching of the diaphragm. The tube was left out five days, when the temperature began to ascend, and soon reached 104° F. There was a return of the sweating, diarrhœa and cough. Nothing had escaped from the wound in the meantime. The wound was then reopened, and about five ounces of stinking pus and débris washed out. A large Van Buren urethral sound was passed into the chest, and it was ascertained that the lung was compressed into a small wad against the vertebral column. It had not expanded at all. He felt the apex of the sound in the chest above the clavicle. He then introduced longer, fenestrated drainage-tubes, three inches in length. From that time on his convalescence was uninterrupted. His temperature quickly became normal, and did not again rise. He soon began to go out of doors, and improved rapidly. On June 12, three weeks after the tubes had been introduced again, notes of the case read: Boy has gained ten pounds; out of doors most all day. Eats enormously and digests well. No cough, and but little discharge. The sound in the chest shows the lung has not expanded. Put in drainage-tubes without fenestra, since granulations had crowded into the former tubes so as to nearly occlude them. Sent boy to a farm near Whitewater, Wisconsin, with instructions to keep tubes in position and syringe out the cavity once a day with warm water that had been boiled. Ten weeks later, on August 25, he returned looking altogether different. Was twenty pounds heavier than when first taken sick, and expressed himself as never feeling better in his life. The tubes had remained in place until a few days before, when they had been crowded out and could not be reintroduced. Physical examination showed the lung expanded, with good motion of the chest and vesicular murmur throughout. In a few days more the opening entirely healed, and the boy left for Norway, perfectly recovered, six months from the commencement of his illness, and four months' wearing of the tube.

It is only within a few years that surgeons have been bold enough to make a section of a rib for empyema. It is, perhaps, but natural that the operation should be condemned by those who have always used the trocar or incision. To oppose the operation on purely theoretical grounds, and conclude that it is a grave and serious operation, is, he believes, contrary to the facts in the published cases.

In the article alluded to in the commencement of the paper, we find a table by a London writer of thirty-four cases of empyema, treated surgically, occurring in children of from one to ten years of age. Of the number, seventeen recovered after a short section of one rib had been made. The average time of recovery was seven weeks.

Dr. Garnett reasons that had these cases been treated with the trocar and drainage tube, they would in all probability have recovered equally as well. Here is what he says against exsection: "When we consider the fact that the bony fabric of the chest is still in a condition of progressive development, the rapid and excessive deposit of callus following the solution of continuity of a rib protruding into the cavity of the chest, irritating the lung, the inevitable disparity and loss of symmetry in expansion of the two sides of the thorax, the growing condition of the child, which necessarily adapts itself to the physical results of the traumatic interference, establishing often a permanent deformity, associated at times with more or less spondylitis, and greatly restricted respiratory capacity of the chest, the pouch of periosteum from which the excised piece of rib has been dissected, the protracted healing and long-continued dressing of the open wound, augmenting the chances of septicæmia, and exhausting the vital energies and recuperative resources of the little sufferer, we should hesitate before resorting to so grave a surgical procedure, when a more simple and conservative one can be safely and successfully practiced."

Dr. Strong thinks such conclusions should not go unchallenged. One does not find them from a careful study of these cases. He asks: "Is subperiosteal cutting away of a short segment of one rib, with modern surgical treatment, liable to be followed by such grave consequences as the writer referred to would have us to believe? Free drainage in abscess-cavities is the imperative rule at the present day. This is best obtained by making a patulous opening larger than it is possible to make between the ribs. In the first case here reported, the rib has completely reformed. In the second it is growing again. In neither case did callus injure the lung. In both cases lung-expansion and chest-motion and shape are perfect. Septicæmia, present in both cases, was quickly cut short by free irrigation, which is only possible through a large opening."

He would therefore conclude that in these two cases, section of the rib at least added nothing to the gravity of either case.

Prof. E. Fletcher Ingals said, some four years ago he had reported fourteen cases of empyema which he had treated. Since that time he had treated a number of others. He had no experience with the method adopted by the reader of the paper, but one of his patients unfortunately had had the operation done upon him. He does not look with favor on the operation excepting as a last resort to allow of greater contraction of the chest. The author of the paper performed the operation skillfully and his patients had recovered. But he says he can open the chest otherwise with safety to the patient and satisfaction to himself. He had treated several cases of empyema similar to those just reported—one, a very young child, perhaps a year and a half old, where recovery followed simple aspiration. He recalled two others which were similar to the first case reported, in which the disease had run from three to five weeks. Drainage-tubes were inserted through a canula, and the cavity washed out frequently, and in both the drainage-tubes were required only between one and two weeks, and the patients were well within three weeks. He thought they recovered more speedily than they would have done if the rib had been resected. In another case, the patient had been sick longer, two or three months, when first seen by him, and it was perhaps six weeks before the child recovered. In all of these cases the expansion of the lungs and chest-wall became perfect.

Children are quite as likely to recover by this method as when ribs are resected, and we avoid a great danger. He believes that he has seen cases die from free opening in the chest-cavity, and he does not think it wise practice to open the pleural sac in this manner.

Dr. John D. Skeer had not had much experience in exsection of the ribs for drainage purposes, but thought that as far as the operation is concerned it is certainly not a very formidable one when preformed as Dr. Strong had described it, by making the operation subperiosteal. Dr. Skeer had had a great deal of trouble in the drainage of chest-cavities with small drainage-tubes. He recalled cases which he had treated

in the army, and he thought now if he had those cases under his care at present that he would exsect a portion of the rib. Rapid flow of matter under these circumstances does not necessarily follow. The opening in the cavity may be small or large, according to the size of the drainage-tubes, and the flow of matter can be moderated according to the requirements of each individual case. The importance of this grows out of the fact that the lung becomes bound down by bands and adhesions which prevent its rapid expansion, and there may possibly be ulcerated spots admitting air into the pleural cavity, and pus into the lung tissues, from too ready expansion of the lung, and it takes time for these bands and adhesions to soften down, relax and expand to accommodate the lung in its natural expansion. We should differentiate between *serous effusion* into the pleural cavity and suppurative inflammation of the pleura.

Dr. H. T. Patrick said his experience with the operation of resection is limited to one case which he had under observation three years ago. It was not a case of simple empyema, but of pneumo-pyothorax, in a boy 10 years of age, of over a year's standing, with considerable retraction of the chest, and a small external opening Three ribs were resected, the sixth, seventh and eighth. The ribs were markedly overlapping one another, and for that reason more was removed. The boy made very satisfactory and rapid recovery. He had abnormal temperature, and was much emaciated, but immediately after the operation, the chest being washed out once a day, he lost his abnormal temperature, and at once began to gain in flesh, and in a few weeks was entirely well. He thinks resection should be limited to this class of cases. He would say that in empyema aspiration, incision and drainage, and resection of the rib should be the order or procedure. In Dr. Strong's second case, the lung's failing to expand well points out one of the weak points of the operation as a primary procedure. Had aspiration been performed first, the conditions would probably have been more favorable for expansion than by making as free an opening as for resection and allowing air to enter the cavity. In aspiration, we follow right in the line of nature's efforts in these cases of retraction of the chest-wall; we allow the chest to fall in and approximate itself to the other surface. There are other dangers connected with this operation as a primary procedure: one is, that there are cases on record where, under an anæsthetic, the cavity has ruptured into a bronchus, and the patient has choked to death. Deaths have also been recorded from simply washing out the cavity.

Dr. N. H. Pierce: "We resect a rib to simply enlarge our area of drainage." In a case that he had in the last month, where he had drawn off nearly three gallons of fluid in three tappings, he had first inserted a drainage-tube of half inch in diameter; this drain was constantly being plugged up by coagula, or whatever it might have been, thus causing retention and absorption of the purulent matter, followed by the usual symptoms. He resected a rib after that, and introduced a drainage-tube one inch in diameter, with the advantage of not having it clogged up, and the patient is making a good recovery. Another point: there have been a number of cases reported from the Berlin clinic of death from drowning, occurring from washing out the cavity while the patient was under ether, there being a communication between the pleural cavity and the lungs. It is well, therefore, that the primary cleansing be delayed until the day following the operation. In three cases of this character, he had let out the entire contents of the cavity, amounting in each case to three or four pints, with no abnormal result, using as an antiseptic lavage a saturated solution of boracic acid. There have been deaths reported from the use in the pleural cavity of carbolic acid, thymol and salycilic acid, and the only agent that has not been proven more or less dangerous when used in the pleural cavity is boracic acid, and Dr. Fraenkle insists that this is the only thing that should be used in this capacity.

Dr. Strong said he was very glad to find that his article had excited so much interest. It is certainly a practical subject, and one we are likely to meet with any day, and he is yet in favor of resection. He gave it as his impression that the first resection was made about fifteen years ago. A point against resection was raised by Professor Ingals—that of the too rapid evacuation of the matter. That point was answered by Dr. Skeer, who said that when we have free evacuation we have a corresponding influx of air which takes the place of pus. He believes that to be so. In the two cases reported there was considerable cough at the time the chest was opened, but that quickly subsided. He had no fear that there would be rupture of the lung; he could feel the pleura three-fourths of an inch thick. Until some better reasons are given for not operating, he will be in favor of making a free opening by resection—making an opening large enough that one can get into the cavity and

evacuate it freely; one cannot get out enough pus through an opening of an eighth of an inch. In the case of the older boy, shreds of lymph as large as the little finger were thrown out for several days. He has no fear in opening the chest freely and draining it freely.

BOOK REVIEWS.

TREATISES ON PHYSIOLOGY.

For the use of students and practittoners of medicine. By Henry C. Chapman, M. D., Professor of Institutes of Medicine and Medical Jurisprudence in Jefferson Medical College, of Philadelphia. Pp. xv. and 945. Philadelphia: Lea Brothers & Co. 1887.

The feeling that a new work on such a well-worn subject as physiology must introduce itself with an apology for its existence, was fully appreciated by the author of this one. The excuse given in the preface is, that while the many other text-books in this branch of medical science are excellent, experience gained as a teacher of the subject, convinced him that one was needed, "based upon comparative and pathological anatomy, clinical medicine, physics and chemistry, as well as upon experimental research."

In all cases, which admit of it, what is known as the historical method or order is employed in this book—a plan which deserves commendation. The author seems to have known clearly what he desired to do, and to have done it well. Very free use has been made of illustrations taken from other books, but in each case acknowledgement is made, and the new cuts are sufficiently numerous to make the illustrations, as a whole, very satisfactory. The author's style is so involved that many students will find it difficult to understand some of his descriptions, whilst others are clear enough.

He apparently ignores, or does not credit the results of some recent observations upon the function of the saliva, and upon the superior costal respiration in the female. E. W.

DIFFERENTIAL DIAGNOSIS OF THE DISEASES OF THE SKIN.

For students and practitioners. By Condic W. Cutler, M. S., M. D. Pp. vi. and 139. New York: G. P. Putnam's Sons. Chicago: W. T. Keener. 1887.

The author's statement, that, "thanks to the untiring efforts of such students in dermatology as (here the names of four comparatively young Americans are given) and others, skin diseases are coming rapidly out of the obscurity in which they have been buried for years," etc., is very complimentary to the men whose names are given, but will cause any one to smile who happens to think who the "others" are who are so calmly ignored. But an unwise preface cannot spoil a good book, and this is a good book. The volume consists of Hebra's classification of skin diseses; some suggestions on taking the history of cases; and then follow, in tabular form, arranged in parallel columns, "The characteristic symptoms of those skin diseases which are liable to be confounded one with another." This tabular arrangement has been done both thoroughly and intelligently, and in its legitimate field the book will be found very useful. E. W.

ANATOMY, DESCRIPTIVE AND SURGICAL. By HENRY GRAY, F. R. S. Drawings by H. V. CARTER, M. D., with additional drawings in later editions. Edited by T. PICKERING PICK. A new American, from the eleventh English edition. Thoroughly revised and re-edited, with additions by WILLIAM W. KEEN, M. D. To which is added LANDMARKS, MEDICAL AND SURGICAL. By LUTHER HOLDEN, F. R. C. S. Pp. 1064. PHILADELPHIA: LEA BROTHERS & COMPANY. 1887. CHICAGO: A. C. McCLURG & COMPANY.

The publishers of this work very properly say that "any marked change in a text-book so universally in use as Gray's Anatomy becomes a matter of no inconsiderable interest to the profession; and we do not, therefore, feel that an apology is necessary in handing you herewith a transcript of the title-page and prefaces of the new edition of that classic work."

"While thoroughly revised, the new edition possesses a marked feature in the use of colors in illustration wherever they can be of service in enabling the eye to more readily follow the details of anatomical construction."

The book comes to us as an old friend in a new garb, that is in keeping with the advanced ideas of the present age.

The names of the eminent medical men given on the title-page are a guaranty of good work, well done, and the fact that the American publishers are Messrs. Lea Brothers & Company warranted the expectation that it would be issued in a manner worthy of so deserving a book, and that expectation has been fully realized.

"In this (eleventh) edition considerable alterations have been made. The introduction of former editions has been incorporated in the body of the work, for the most part in the form of two sections—one on General Anatomy, the other on Development. These have been entirely rewritten, in order to keep pace with the ever-increasing activity of research in these branches of the science of Anatomy. Some portions of the Introduction have, however, been removed from their former position, and introduced in their appropriate places in other parts of the work; as, for instance, the minute structure of the spinal cord, which has been inserted, with the general description of this part, in the section devoted to the Nervous System.

The whole of the work has undergone a careful revision."

"In the section on Arthrology the movement or movements permitted in each joint have been carefully revised, and the muscles by which these movements are effected have been given. In the section on Myology the action of each muscle or group of muscles has been carefully considered, and many alterations and corrections made. The anomalous muscles mentioned in former editions have been excluded. It was thought that, interesting as these anomalous conditions may be to the scientific anatomist, they were scarcely necessary, and were to a certain extent out of place in a text-book intended for the use of the student of Anatomy. The other parts of the work, and especially that devoted to Microscopic Anatomy, have been carefully revised, and some alterations in arrangement and detail have been introduced.

The whole of the arteries, veins and nerves in the woodcuts have been colored, and it is hoped that this will give additional clearness to the illustrations and enhance the value of the work. In the section of Osteology the dotted lines showing the attachment of the muscles have also been colored."

The American edition is published both with and without colors. In this American edition one hundred and thirteen new engravings have been added, of which, it is said, many are original, which adds to the interest of the book.

"Among these new illustrations are many of the most obvious utility, such as a series of sections through important joints; a series of frozen sections through the trunk, the extremities and the female pelvis; cuts illustrating the histology of various tissues," etc., etc., thus making very substantial additions to a work that was already too well known, and too fully appreciated, to need other commendation than the fact of its having been a favorite text-book for more than a quarter of a century. In its present form it will be welcomed by the whole medical profession of this country.

DISEASES OF THE FEMALE MAMMARY GLANDS, by TH. BILLROYTH, M. D., of Vienna; and NEW GROWTHS OF THE UTERUS, by A. GUSSEROW, M. D., of Berlin, Illustrated. These two works constitute Vol. I X, of the "*Cyclopædia of Obstetrics and Gynæcology*," issued monthly during 1887. NEW YORK: WILLIAM WOOD & COMPANY; CHICAGO: W. F. KEENER.

One hundred and fifty-eight of the four hundred and twenty-six pages, which comprise this volume, are written by the distinguished professor of surgery at Vienna. The subject is treated in the clear and complete style which characterizes the author's lectures in surgery.

The work of the Berlin obstetrician suffers by comparison, but is nevertheless admirably done, and the volume, as a whole, fully maintains the reputation established by the earlier numbers of the series.

DISEASES OF THE FEMALE URETHRA AND BLADDER, by F. WINCKEL, M. D., of the Royal University, Munich; and DISEASES OF THE VAGINA, by A. BREISKY, M. D., of the Royal University, Vienna. Edited by EGBERT H. GRANDIN, M. D., of New York. These two treatises constitute Vol. X. of "THE CYCLOPÆDIA OF OBSTETRICS AND GYNECOLOGY," issued monthly during 1887. NEW YORK: WILLIAM WOOD & COMPANY; CHICAGO: W. T. KEENER.

The authors of this treatise are both popular clinical teachers. We are accustomed to the saying, that whatever the Germans undertake they do thoroughly, and this volume is not an exception to that rule. The size of the book, 393 pages, about equally divided between the two subjects, render the treatment necessarily encyclopædic, as the title of the series indicates The illustrations are numerous (97) and well chosen. They are very much more carefully engraved and printed than those which appeared in the early numbers of the Cyclopædia, and are fairly satisfactory.

"A Handbook of General and Operative Gynæcology." Vol. I. By Dr. A. Hegar (University of Freiburg) and Dr. R. Kattenbach (University of Giessen). In two volumes. This is also Vol. VI. of "A Cyclopædia of Obstetrics and Gynæcology," issued monthly during 1887. New York: William Wood & Company; Chicago: W. T. Keener.

The most important part of this volume, that upon Ovariotomy, is written by the professor at Giessen. He places Keith and Tait at the head of the list of ovariotomists, and makes an earnest attempt to account for the great success of the latter without the use of antiseptics. The conclusion arrived at by the author is that practically an aseptic condition is secured by the care which the operator mentioned takes to avoid sources of infection. Small incisions and rapidity in operating do not receive the credit, in explaining Tait's success, which is usually accorded them. It goes without saying that the rest of the book is well written.

"A Handbook of General and Operative Gynæcology." Vol. II. By Dr. A. Hegar, and Dr. R. Kattenbach. In two volumes. Volume VI. of "A Cyclopædia of Obstetrics and Gynæcology," issued monthly during 1887.

This concluding volume of the handbook treats of operations on the tubes, uterus, broad ligaments, round ligaments and vagina, operations in urinary fistulae, prolapse operations, and operations upon the vulva and perinæum.

As in the first volume, most of this is written by the professor at Giessen. The work of both of the authors is characterized by the usual German thoroughness and conscientiousness, and the two volumes combined make a very desirable addition to the literature of the subject.

PAMPHLETS RECEIVED.

"The Anatomy and Physiology of the Recurrent Laryngeal Nerves." By Franklin H. Hooper, M. D.

Transactions of the Indiana State Dental Association, 1887.

Transactions of the Illinois State Dental Society, Twenty-third Annual Meeting, 1887.

Medical Communications of the Massachusetts Medical Society, Vol. XIV., No. 1, 1887.

Programme of the Fifteenth Annual Meeting of the American Public Health Association, Nov. 8, 9, 10, 11, 1887.

"Hay Fever." By Seth S. Bishop, M. D.

"A Report on Orthopedic Surgery. Remarks on Stricture of the Rectum." By W. R. Whitehead, M. D.

"On the Existence of Dermatitis Herpetiformis as a Distinct Disease." By Duncan Bulkley, A. M., M. D.

"The Galvanic Treatment of Uterine Fibroids. By Ephraim Cutter, A. M., M. D., LL. D.

"Diet in Cancer." By Ephraim Cutter, A. M., M. D., LL. D.

"To What Extent can we Classify Vesical Calculi for Operation?" By A. Vandeveer, M. D.

"A Case of Gastrotomy for Cancer of the Œsophagus." By J. Collins Warren, M. D.

"Observations on the Cholera Bacillus as a Means of Positive Diagnosis." By S. T. Armstrong, M. D., and J. J. Kinyoun, M. D.

"The True Nature and Definition of Insanity." By C. H. Hughes, M. D.

"An Experimental Study of the Effects of Puncture of the Heart in Chloroform Narcosis." By B. A. Watson, A. M., M. D.

"Supra-Pubic Lithotomy. A Historical Sketch." By Charles W. Dulles, M. D.

"Courier Review Call-Book." Arranged by E. M. Nelson, M. D., Ph. D., J. H. Chambers & Co.

"The Medical News Visiting List." Lea Brothers & Company.

"The Medical World Visiting List."

Transactions of the State Medical Society of Arkansas, 1887.

Transactions of the Medical Society of the State of California, 1887.

Annual Report of the Supervising Surgeon-General of the Marine Hospital Service of the United States, 1887.

Bind in whitepaper

Fellows' Hypo-Phos-Phites.

(SYR: HYPOPHOS: COMP: FELLOWS.)

Contains **The Essential Elements** to the Animal Organization—Potash and Lime

The **Oxydizing Agents**—Iron and Manganese;

The **Tonics**—Quinine and Strychnine;

And the **Vitalizing Constituent**—Phosphorus.

Combined in the form of a Syrup, *with slight alkaline reaction.*

It differs in effect from all others, being pleasant in taste, acceptable to the stomach, and harmless under prolonged use.

It has sustained a high reputation in America and England for efficiency the treatment of Pulmonary Tuberculosis, Chronic Bronchitis, and other affections of the respiratory organs, and is employed also in various nervous and debilitating diseases with success.

Its Curative Properties are largely attributable to Stimulant, Tonic and Nutritive qualities, whereby the various organic functions are recruited.

In Cases where innervating constitutional treatment is applied, and tonic treatment is desirable, this preparation will be found to act with safety and satisfaction.

Its Action is Prompt, stimulating the appetite and the digestion; it promotes assimilation, and enters directly into the circulation with the food products.

The Prescribed Dose produces a feeling of buoyancy, removing depression or melancholy, and hence is of great value in the treatment of MENTAL AND NERVOUS AFFECTIONS.

From its exerting a double tonic effect and influencing a healthy flow of the secreions, its use is indicated in a wide range of diseases.

PREPARED BY JAMES I. FELLOWS, CHEMIST,

48 VESEY ST., - NEW YORK

Circulars Sent to Physicians on application. **For Sale by all Druggists.**

THE WESTERN PENNSYLVANIA MEDICAL COLLEGE.

CITY OF PITTSBURGH.

FACULTY:

Professors McCann, Lange, Connell, Duff, Blanck, McKennan, Haszard, Brown, Mundorff, Biagle, English, Murdoch, Snively, Asdale, King, Thomas, Dunn, Ayres, Case, Mabon and Hechelman. Wood,

SESSIONS OF 1887-88.—Spring Session begins Second Tuesday in April, ends Last Week in June.

COURSE: DIDACTIC AND CLINICAL LECTURES, RECITATIONS AND LABORATORY PRACTICE.

Fee, $25.00 (Credited on General Ticket to those who attend during the ensuing Regular Session).
Matriculation Fee (good for one year), $5.00.

Regular Session begins Tuesday, September 27, 1887, and ends in last week of March, 1888. Four Didactic Lectures daily, and **Two Hours Daily** devoted to **Clinical** instruction.

Practical Courses in Chemistry and Microscopy.—Attendance upon two *Regular Courses* requisite graduation. *A three years' GRADED COURSE also provided.*

College Building new and commodious; ample accommodations for 250 students. The College, Dispensary and the WESTERN PENNSYLVANIA HOSPITAL adjoining, (200 beds), afford unexcelled opportunities for Clinical study.

Fee for Regular Course, $100. Dissection Fee (including material), $10.00. Graduation Fee, $25.00.

For Catalogue, etc., address, W. J. ASDALE, M. D., Sec'y, 2107 Penn Ave., Pittsburgh, Pa.

COLLEGE OF PHYSICIANS AND SURGEONS

OF CHICAGO.

THE REGULAR SESSION of this Institution will commence SEPTEMBER 21st, 1887, and continue Twenty-four Weeks.

A GRADED COURSE of Instruction covering two or more Winter Sessions.

THE COLLEGE BUILDING (directly opposite the Cook County Hospital), is one of the most complete and elaborate edifices devoted to medical teaching in this country.

Fees.—Matriculation, $5. General Ticket, $60. Announcements containing full information sent on application. Address

DR. D. A. K. STEELE, *Secretary, 1801 State Street, CHICAGO.*

THE

Jefferson Medical College

OF PHILADELPHIA.

The Sixty-third Session of the Jefferson Medical College will begin on October 1st, 1887, and will continue until the end of March, 1888. Preliminary Lectures will be held from 19th of September.

PROFESSORS.

J. M. DA COSTA, M. D., LL. D.,
Practice of Medicine.

ROBERTS BARTHOLOW, M. D., LL. D.,
Materia Medica, General Therapeutics and Hygiene.

HENRY C. CHAPMAN, M. D.,
Institutes of Medicine and Medical Jurisprudence.

SAMUEL W. GROSS, M. D., LL. D.,
Principles of Surgery and Clinical Surgery.

JOHN H. BRINTON, M. D.,
Practice of Surgery and Clinical Surgery.

THEOPHILUS PARVIN, M. D., LL. D.,
Obstetrics and Diseases of Women and Children.

J. W. HOLLAND, M. D.,
Medical Chemistry and Toxicology.

WILLIAM S. FORBES, M. D.,
General, Descriptive and Surgical Anatomy.

WILLIAM THOMPSON, M. D.,
Honorary Professor of Ophthalmology.

MORRIS LONGSTRETH, M. D.,
Lecturer on Pathological Anatomy.

The FALL TERM is preliminary to the lectures of the Winter Course, and is occupied with topics supplementary o them.

CLINICAL INSTRUCTION is given *daily* at the HOSPITAL OF THE JEFFERSON MEDICAL COLLEGE throughout the year by Members of the Faculty, and by the Hospital Staff.

The Annual Announcement, giving full particulars, will be sent on application to

J. W. HOLLAND, M. D., *Dean.*

University of the City of New York,

MEDICAL DEPARTMENT.

410 East Twenty-Sixth St., opp. Bellevue Hospital, New York City.

FORTY-SEVENTH SESSION, 1887-88.

FACULTY OF MEDICINE.

REV. JOHN HALL, DD., LL. D., *Chancellor of the University.*
REV. HENRY M. McCRACKEN, D. D., *Vice-Chancellor.*
CHARLES INSLEE PARDEE, M. D., *Dean of the Faculty; Professor of Otology.*
J. W. S. ARNOLD, M. D., *Professor Emeritus of Physiology and Histology.*
ALFRED L. LOOMIS, M. D., LL. D., *Professor of Pathology and Practice of Medicine; Physician to Bellevue Hospital.*
WILLIAM H. THOMPSON, M. D. LL. D., *Professor Materia Medica and Therapeutics; Diseases of the Nervous System; Physician to Bellevue Hospital.*
J. WILLISTON WRIGHT, M. D., *Professor of Surgery; Surgeon to Bellevue Hospital.*
WM. NECKLENBURG POLK, M. D., *Professor of Obstetrics and Diseases of Women and Children; Physician to Bellevue Hospital, and to Emergency Lying-in Hospital.*
LEWIS A. STIMSON, M. D., *Professor of Anatomy; Professor of Clinical Surgery; Surgeon to Bellevue and Presbyterian Hospitals.*
RUDOLPH A. WITTHAUS, M. D., *Professor of Chemistry and Physics.*
WM. G. THOMPSON, M. D., *Professor of Physiology.*
STEPHEN SMITH, M. D., *Professor of Clinical Surgery; Surgeon to Bellevue Hospital.*
A. E. McDONALD, LL. B., M. D., *Professor of Medical Jurisprudence and Psychological Medicine; General Superintendent of the N. Y. City Asylums for the Insane.*
HERMAN KNAPP, M. D., *Professor of Ophthalmology; Surgeon to the New York Ophthalmic and Aural Institute.*
FANEUIL D. WEISSE, M. D., *Professor of Practical and Surgical Anatomy; Surgeon to Workhouse Hospital, B. I.*
HENRY G. PIFFARD, M. D., *Clinical Professor of Dermatology; Consulting Surgeon to Charity Hospital.*
F. R. S. DRAKE, M. D., *Clinical Professor of Medicine: Physician to Bellevue Hospital.*
JOSEPH E. WINTERS, M. D., *Clinical Professor of Diseases of Children.*
PRINCE A. MORROW, M. D., *Clinical Professor of Venereal Diseases; Surgeon to Charity Hospital.*
WILLIAM C. JARVIS, M. D., *Clinical Professor of Laryngology.*
LAURENCE JOHNSON, M. D., *Professor of Medical Botany; Visiting Physician to Randall's Island Hospital.*
WESLEY M. CARPENTER, M. D., *Clinical Professor of Medicine.*
HARRY P. LOOMIS, M. D., *Adjunct Professor of Pathology, and Director of the Pathological Laboratory.*
S. C. BLAISDELL, M. D., *Demonstrator of Anatomy.*
MAURICE N. MILLER, M. D., *Director of the Histological Laboratory.*

THE PRELIMINARY SESSION will begin on Wednesday, September 21st, 1887, and end October 4th, 1887. It will be conducted on the same plan as the Regular Winter Session.

THE REGULAR WINTER SESSION will begin October 5th, 1887, and end about March, 1888. The plan of Instruction consists of Didactic and Clinical Lectures, recitations and laboratory work in all subjects in which it is practicable.

LABORATORIES AND SECTION TEACHING.—The complete remodeling of the College building and the addition of the new "Loomis Laboratory" adjoining, will be completed for the opening of the session of 1887–88. They will afford greatly increased laboratory accommodations in the departments of Biology, Pathology, Physiology, Chemistry and Physics. A new amphitheater and a new lecture room has been provided as well as adequate facilities for Section Teaching, in which the material for the College Dispensary will be utilized.

Two to five Didactic Lectures and two or more Clinical Lectures will be given each day by members of the Faculty. In addition to the ordinary clinics, ***special clinical instruction,*** WITHOUT ADDITIONAL EXPENSE, will be given to the candidates for graduation during the latter part of the Regular Session. For this purpose the candidates will be divided into sections of twenty-five members each. All who desire to avail themselves of this valuable privilege must give in their names to the Dean during the first week. At these special clinics students will have excellent opportunities to make and verify diagnoses, and watch the effects of treatment. They will be held in the Wards of the Hospitals and at the Public and College Dispensaries.

Each of the seven Professors of the Regular Faculty, or his assistant, will conduct a recitation on his subject one evening each week. Students are thus enabled to make up for lost lectures and prepare themselves properly for their final examinations without additional expense.

THE SPRING SESSION will begin about the middle of March and end the last week in May. The daily Clinics and Special Practical Courses will be the same as in the Winter Session, and there will be lectures on Special Subjects by Members of the Faculty.

It is supplementary to the Regular Winter Session. Nine months of continued instruction are thus secured to all students of the University who desire a thorough course.

FEES.

FOR COURSE OF LECTURES	$140 00
MATRICULATION	5 00
DEMONSTRATOR'S FEE, INCLUDING MATERIAL FOR DISSECTION	10 00
FINAL EXAMINATION FEE	30 00

For further Particulars and Circulars address the Dean,

PROF. CHAS. INSLEE PARDEE, M. D.,
University Medical College, 410 East 26th Street, New York City.

THE WOMANS' MEDICAL COLLEGE OF CHICAGO,

335 S. Lincoln St., Opposite the County Hospital.

The regular session begins the FIRST TUESDAY IN SEPTEMBER, and continues thirty-one weeks. Clinical advantages unsurpassed.

FACULTY.

W. GODFREY DYAS, M.D., F.R.C.S.,
Professor Emeritus of Theory and Practice of Medicine.
G. C. PAOLI, M.D.,
Professor Emeritus of Materia Medica and Therapeutics.
T. DAVIS FITCH, M.D.,
Professor Emeritus of Gynecology.
R. G. BOGUE, M.D.,
Professor Emeritus of Surgery.
WM. H. BYFORD, A.M., M.D., PRESIDENT,
Professor of Gynecology.
CHARLES WARRINGTON EARLE, A.M., M.D.,
TREASURER,
Professor of Diseases of Children and Clinical Medicine.
ISAAC N. DANFORTH, A.M., M.D.,
Professor of Pathology and of Renal Diseases.
HENRY M. LYMAN, A.M., M.D.,
Professor of Theory and Practice of Medicine.
DANIEL R. BROWER, M.D.,
Professor of Diseases of the Nervous System, and Clinical Medicine.
SARAH HACKETT STEVENSON, M.D.
Professor of Obstetrics.
DAVID W. GRAHAM, A.M.,M.D.,
Professor of Surgery.
WM. J. MAYNARD, A.M., M.D.,
Professor of Dermatology.
WM. T. MONTGOMERY, M.D.,
Professor of Ophthalmology and Otology.
E. FLETCHER INGALLS, A.M., M.D.,
Professor of Diseases of the Chest and Throat.
F. L. WADSWORTH, M.D.,
Professor of Physiology.
MARIE J. MERGLER, M.D., SECRETARY,
Professor of Gynecology.
EUGENE S. TALBOTT, M.D., D.D.S.,
Professor of Dental Surgery.
JEROME H. SALISBURY, A.B., M.D.,
Professor of Chemistry and Toxicology.
MARY E. BATES, M.D.,
Professor of Anatomy.
JOHN A. ROBISON, M.D.
Professor of Materia Medica and Therapeutics.
MARY H. THOMPSON, M.D.,
Clinical Professor of Gynecology at the Hospital for Women and Children.
ELIZA H. ROOT, M.D.,
Professor of Hygiene and Medical Jurisprudence.

Lecturers and Assistants.

ROBERT S. HALL, M.D.,
Clinical Lecturer on Midwifery, and in charge of outside Obstetrical Department.
HOMER M. THOMAS, M.D.,
Lecturer on Diseases of the Chest and Throat.
ANNETTE S. DOBBIN, M.D.,
Assistant to the Chair of Anatomy.

Assistant to the Chair of Anatomy.
FRANK CARY, M.D.,
Lecturer on Histology and Microscopy.
DR. J. E. WHITE, COLLEGE CLERK.

For announcements address the Secretary,

MARIE J. MERGLER, M. D., 29 N. Throop St., Chicago, Ill.

CHICAGO MEDICAL COLLEGE.

(Corner Prairie Ave. and Twenty-sixth St., Chicago.)

MEDICAL DEPARTMENT OF THE NORTHWESTERN UNIVERSITY.

SESSION 1887-8.

N. S. DAVIS, M.D., LL.D., Dean.

The Collegiate year begins on September 27, 1887.
The course of instruction is graded, students being divided into first, second and third year classes.
Qualifications for admission are either a degree of A. B., a certificate of a reputable academy or a preliminary examination.
The method of instruction is conspicuously practical, and is applied in the wards of the Mercy, St. Luke's and Michael Reese Hospitals daily at the bedsides of the sick.
FEES IN ADVANCE: Matriculation, $5.00, once only; Lectures, $75.00; Demonstrator, including Material, $10.00, Hospitals: Mercy, $6.00; St. Luke's, $5.00. Laboratory, 5.00. Breakage, $5.00, returnable. Final examination, $30.00, February 1. No extra fees for private classes or Microscopical Laboratory,

FACULTY.

H. A. JOHNSON, M.D., LL.D., Emeritus.
E. O. F. ROLER, A.M., M.D., Emeritus.

N. S. DAVIS, M.D., LL.D., Dean.
EDMUND ANDREWS, M.D., LL.D., Treasurer.
RALPH N. ISHAM, A.M., M.D.
JOHN H. HOLLISTER, A.M., M.D
S. J. JONES, M.D., LL.D.
M. P. HATFIELD, A.M., M.D.
JOHN H. LONG, Sc. D.
E. C. DUDLEY, A.B., M.D.
JOHN E. OWENS, M.D.
O. C. DEWOLF, A.M., M.D.
WALTER HAY, M.D., LL.D.
F C. SCHAEFER, M.D.
I. N. DANFORTH, A.M., M.D.
W. E. CASSELBERRY, M.D.
W. W. JAGGARD, A.M., M.D.
R. W. BISHOP, A.B., M.D.
N. S. DAVIS, JR., A.M., M.D.
F. S. JOHNSON, A.M., M.D.
FRANK BILLINGS, M.D., Secretary.
E. WYLLYS ANDREWS, A.M., M.D.

Lecturers.

J. S. MARSHALL, M.D.
ELBERT WING, A.M., M.D.
FRANK T. ANDREWS, A.M., M.D.
W. E. MORGAN, M.D., Demonstrator.
HERBERT H. NOTHINGHAM, M.D.
GEORGE W. WEBSTER, M.D.

For further information, address

FRANK BILLINGS, M.D., Secretary, 235 State St., Chicago, Ill.

Carnrick's Soluble Food

Is the only infants' Food manufactured that perfectly nourishes the child without the addition of cow's milk. We do not except the so-called milk Foods for they contain but a VERY SMALL PERCENTAGE of the solid constituents of cow's milk. Most of the credit given to prepared foods belong to cow's milk, which must be added to them or the child would starve.

Carnrick's Soluble Food is composed of about equal proportions of the solid constituents of cow's milk, partially digested, and wheat flour, the starch of which is converted into dextrine and soluble starch.

THOMAS H. ROTCH, M.D., INSTRUCTOR IN DISEASES OF CHILDREN, MEDICAL DEPARTMENT OF HARVARD UNIVERSITY, IN THE BOSTON MEDICAL AND SURGICAL JOURNAL, SEPTEMBER 29, 1887, SAYS: "Cow's milk is the universal menstruum of infant Foods all over the world, and is the ACTUAL FOOD which the infant is getting; hence it is irrational and unfair to speak of and give the credit to the various artificial foods, when we really should speak of cow's milk, with its modification to a greater or less degree by certain adjuvants under the name of infant Foods, which all supply about the same variety of ingredients in common; such small amounts of these ingredients as to be of little benefit in nourishing the infant, AND WOULD NOT NOURISH IT UNLESS AIDED BY COW'S MILK."

CARNRICK'S SOLUBLE FOOD

is positively the only Infant's Food manufactured to which the foregoing criticisms do not apply.

BEEF PEPTONOIDS.

(CONCENTRATED BEEF AND MILK WITH GLUTEN.)

Is the most concentrated and easily digested nutrient that has ever been introduced to the medical profession. Beef Peptonoids in the form of a powder is not a pure peptone, only one-fourth being digested. We are confident that you will find Beef Peptonoids in all cases where you desire a concentrated and easily digested food superior to any preparation in the market, or that can be prepared in the household.

The following are the opinions of most eminent authorities in the world:

PROF. ATTFIELD SAYS OF BEEF PEPTONOIDS: "It is by far the most nutritious and concentrated Food I have ever met with."

PROF. STUTZER SAYS: "When the formation of flesh and blood is to be promoted and vigor infused into a patient, Beef Peptonoids for this purpose stands first and foremost amongst all the preparations I have examined."

LIQUID PEPTONOIDS

Is presented in the form of an elegant Cordial, containing twenty per cent. of spirits. Its nutritive constituents are wholly digested. It will agree with patients who reject all other foods.

Peptonized Cod Liver Oil and Milk

IS SUPERIOR TO OTHER PREPARATIONS OF COD LIVER OIL:

Because the DIVISION OF THE OIL GLOBULES IS FROM TWENTY TO ONE HUNDRED TIMES finer than any other preparation of Cod Liver Oil ever produced, and consequently brought nearer the condition required for assimilation.

It is predigested, and is, therefore, more easily retained by weak and enfeebled stomachs and eructations are less liable to follow.

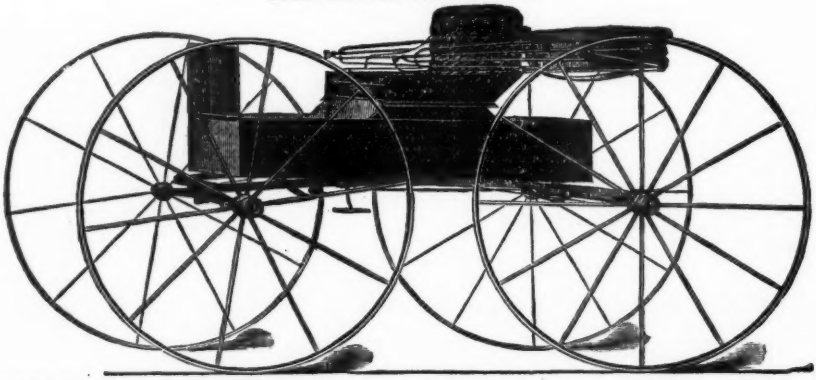
Samples sent on application by

REED & CARNRICK, N. Y.

ABBOTT BUGGY CO.

317 WABASH AVENUE, CHICAGO, ILL.

SOLE MANUFACTURERS OF

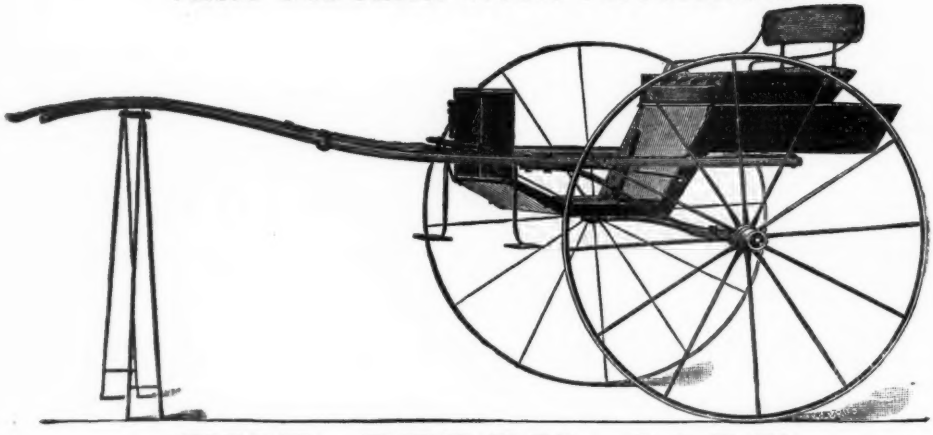


THE STEEL GEAR BUGGY.

PRACTICALLY INDESTRUCTIBLE.

No wood to shrink, break, decay or wear out; no bolts or clips to become loose or rattle; a gear made entirely of steel, riveted together; cannot be broken; will last forever.

VERY POPULAR WITH PHYSICIANS.



THE PERRY CART,

The Only Two-Wheeled Vehicle Ever Constructed that Is Positively Free from Horse Motion.

HAS NO COMPETITOR.

The No. 74 Cart illustrated above is especially adapted for Physicians. Is light, has room under the seat, furnished with top when wanted.

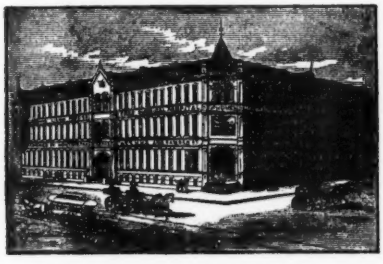
SEND FOR CIRCULAR AND PRICE SL.I -I

THE VALUE OF MURDOCK'S LIQUID FOOD IS RECOGNIZED IN ALL COUNTRIES, AND IS ENDORSED BY ALL NATIONAL MEDICAL SOCIETIES THAT HAVE INVESTIGATED ITS VALUE.

There never was an essay read before any Medical Society on Raw Food Extracts, except on Murdock's Liquid Food, and counterfeit manufacturers of Extracts have published many of our essays to show the value of their counterfeits.

Send for essay and discussion before the British Medical Association at Brighton, England, 1886 (Essay), by the vice-president of the American Medical Association, and others, on the value of Murdock's Liquid Food over all Foods and extracts known, it being the ONLY raw condensed Food free from insoluble matter. Also, essay read before the American Medical Association *at Richmond, Virginia, and Washington, D. C.*

Its value was recognized by the profession from results obtained in the Free Hospitals that have been established and supported by our Mr. A. L. Murdock during the last four years. They now equal



140 FREE BEDS

and contain 38,000 feet of floor.

Our Liquid Food can be retained by the weakest stomach. Four tablespoonfuls daily will make eight per cent. new blood weekly. When used for infants, never change their food, but add five or more drops of Liquid Food at each feeding, and their lost or needed vitality will be restored in less than thirty days.

The report of the chairman of the Section of Obstetrics of the American Institute of Homœopathy, read at Saratoga, at the annual meeting of 1886, says:

Circulars were sent by him to all the physicians in the United States, asking what their experience was with Murdock's Liquid Food in its use for infants under as well as over, one year old. Then, what results with all the different Milk Preparations, Grain Foods, Peptonoid Foods and Beef Extracts, compared with Murdock's Liquid Food.

The returns show that it is the Standard Food and Extract, as the percentage of lives restored was the largest when used.

We extract from the report. After calling attention to the fact that one-quarter of the homœopathic profession are accustomed frequently to prescribe this food for children less than a year old, as well as over, he remarks:

In itis singularly adapted to scrofulous, syphilitic and tubercular constitutions, its life-restoring power manifesting itself " each with a relative clearness and power corresponding to the order of enumeration. For fair-haired children who are inclined to gr ow fleshy it is more symptomatically recommended, while Duncan's *ACID* babies find it particularly useful. Accordingly it is chiefly employed for marasmus and anæmic conditions resulting either from non-assimilation of food or from simple summer complaint. Should a child vomit all milk food and suffer synchronously with diarrhœa or dysentery, the demand for this food is emphatic and unmistakable: also, in general irritability of the stomach, particularly if there be sour-smelling diarrhœa, the food passing through undigested. For the prematurely born it stands pre-eminent. For those 'weak and debilitated from any cause Murdock's Food is probably the best in the world.' Should any indication of cerebral hyperæmia appear, the quantity of food must be diminished; so, too, if after its protracted use vomiting and diarrhœa ensue, the child has been overfed. **Should the taste or odor of any given bottle chance to be disagreeable, add water until they disappear, and let the purchaser congratulate himself upon getting more nutriment than he paid for.** When given in combination with milk in cases of indigestion, the quantity of milk should be diminished until all curds disappear from the stool, the quantity of Food, of course, being proportionately increased."

The Surgical Staff at Murdock's Free Hospital for Women are in daily attendance, except Saturdays, to examine patients and assign beds.

Our free Surgical Hospital for Women, located on Huntington Avenue, above West Chester Park, contains fifty 50) beds, in charge of a staff of five surgeons, members of the Massachusetts Medical Society.

Our Free Surgical Hospital for Women, located on Gainsborough Street, corner of Huntington Avenue, contains 50 beds, in charge of a staff of five surgeons, members of the Massachusetts Homœopathic Medical Society.

Our Free Home for Homeless Boys contains 40 beds, and is located at 11 to 21 Causeway Street. Many of these boys suffer from Scrofula, Eczema and other skin diseases, which yield quickly by the use of our Liquid Food.

From the fact that no two beeves or sheep are alike is he reason of our different brands being different in flavor.

All brands are made by the same formula. The letter represents the day of make, and the figure the tank.

If richer, it is stronger in smell and flavor, and will bear a greater reduction. It cannot be reduced so low but it will be superior to all other preparations in treating chronic cases.

If you cannot obtain Murdock's Liquid Food from your druggist, we deliver free of express, 12 oz. for $1. Any physician that has not used our Liquid Food, we will deliver free to the Boston Express 12 oz.

MURDOCK'S LIQUID FOOD CO., BOSTON.

CHERRY MALT PHOSPHITES

This preparation is believed to be the only Malt Extract continuously acceptable to the stomach. The attention of those who have ceased prescribing other extracts of malt because of excessive sweetness is specially called to this.

CHERRY MALT PHOSPHITES

Is a combination of Wild Cherry, the condensed extract of the important Cereals and the Elixir of the Hypophosphites. Its flavor is delicious, and it is medicinally invaluable in all cases of General and Nervous Debility, Dyspepsia, Imperfect Nutrition, Impure Blood, Wasting Diseases of Children and Adults. It is extensively prescribed in European countries, and has received the cordial endorsement of the leading practitioners of this country.

PRICE, $1.00 PER BOTTLE.

To physicians not familiar with its merits, who will pay express charges, we will send a full-sized bottle FREE.

☞ Please mention this Journal.

LIEBIG'S LIQUID FOOD,

A Concentrated Extract of Beef, possessing both tonic and nutrient properties. Manufactured only by the

LIEBIG PHARMACAL CO., N. Y.

W. C. JACOBS, MANAGER.

PRINTING AND ENGRAVING.

308-316 DEARBORN STREET.

A large number of people who reside at a distance from the principal cities, not understanding the facility and accuracy with which orders for Printing and Engraving can be filled through the mails, are obliged to content themselves with a very inferior quality of work, when by sending to headquarters they could have the same executed at moderate prices, and in a thoroughly satisfactory and artistic manner.

THE CLARK & LONGLEY COMPANY

Are now conducting an extensive trade through the mails, and are in a position to supply the wants of their customers promptly, intelligently and economically. They furnish estimates and samples for every description of PRINTING AND ENGRAVING.

CHICAGO

THE CLARK & LONGLEY COMPANY

CELERINA

NERVE-TONIC, STIMULANT AND ANTISPASMODIC.

FORMULA.—Every Fluid-Drachm represents FIVE grains EACH—Celery, Coca, Kola, Viburnum and Aromatics.

INDICATIONS.—Impotency, Spermatorrhea, Loss of Nerve-Power (so usual with Lawyers, Preachers, Writers and Business Men), Nervous Headache, Neuralgia, Paralysis, Dysmenorrhea, Hysteria, Opium-Habit, Inebriety, Prostatitis, Dyspepsia, and ALL LANGUID or DEBILITATED conditions of the System.—*Indispensable to restore a patient after alcoholic excess.*

DOSE.—One or two teaspoonfuls three or more times a day, as directed by the Physician.

ALETRIS CORDIAL

UTERINE TONIC AND RESTORATIVE.

PREPARED FROM THE ALETRIS FARINOSA OR TRUE UNICORN.

INDICATIONS.—Amenorrhea, Dysmenorrhea, Leucorrhea, Prolapsus Uteri, Sterility, to PREVENT Miscarriage, etc.

DOSE.—One teaspoonful three or four times a day.

Unrivaled as a Uterine Tonic in Irregular, Painful, Suppressed and Excessive Menstruation

IT RESTORES NORMAL ACTION TO THE UTERUS, AND IMPARTS VIGOR TO THE ENTIRE UTERINE SYSTEM.

☞ Where Women have aborted during previous Pregnancies, or in any case where abortion is feared, the Aletris Cordial is indicated, and should be continuously administered during entire gestation.

ACID MANNATE

A MILD, SAFE AND PLEASANT APERIENT.

☞ Prepared from Manna, Purified Cathartic Acid, and Fruit Juices. ☜

INDICATIONS.—Constipation, Biliousness, Congestions, Etc. INDISPENSABLE AS AN APERIENT FOR WOMEN DURING PREGNANCY. In teaspoonful doses, 3 times a day, it favors the SECRETION and EXCRETION of bile, and gradually removes the congested and torpid states of the liver, and keeps the bowels in a regular and soluble condition.

DOSE.—ONE or MORE teaspoonfuls as directed by the Physician.

S. H. KENNEDY'S
CONCENTRATED EXTRACT OF
PINUS CANADENSIS
DARK — A NON-ALCOHOLIC LIQUID. — WHITE

A MOST VALUABLE NON-IRRITATING MUCOUS ASTRINGENT.

INDICATIONS.—Albuminuria, Diarrhea, Dysentery, Night-Sweats, Hemorrhages, Profuse Expectoration, Catarrh, Sore Throat, Leucorrhea, and other Vaginal Diseases, Piles, Sores, Ulcers, Burns, Scalds, Gonorrhea, Gleet, Etc.

When Used as an Injection, to Avoid Staining of Linen, the WHITE Pinus should be Used.

Recommended by DR. J. MARION SIMS, and other Prominent Physicians.

RIO CHEMICAL COMPANY, ST. LOUIS

LONDON. ● PARIS

Samples FREE to any Physician who will pay Express charges, and mention this Journal.

PHARMACAL ∴ PREPARATIONS.

PARIS, 1867.

Prize Medal.

1868.

Silver Medal.

1872.

Gold Medal.

BOUDAULT'S PEPSINE

AND

WINE, ELIXIR, SYRUP, PILLS AND LOZENGES OF PEPSINE.

Since the introduction of PEPSINE by Boudault in 1854, **Boudault's Pepsine has been and is still considered the most reliable,** as is attested by the awards it has received at the Exhibitions of 1867, 1868, 1872, 1873, and *in 1876 at the Centennial Exposition at Philadelphia.* Careful tests will enable any one to satisfy himself that *Boudault's Pepsine has a digestive power at least double* that of the best Pepsines in the market, and that it is really the cheapest.

VIENNA, 1873.

Medal of Merit.

It is sold in 4 oz., 8 oz., and 16 oz. bottles. Beware of so-called *French Pepsines,* bearing fictitious names. Ask for and

TAKE ONLY "BOUDAULT'S."

PHILA. 1876.

Medal of Merit.

E. FOUGERA & CO., - New York Agents.

SCHEFFER'S PEPSIN.

SACCHARATED PEPSIN;

Standard strength of UNITED STATES PHARMACOPŒIA, which is, that one part shall digest at least fifty parts of coagulated albumen.

CONCENTRATED DRY PEPSIN;

One part dissolves four hundred to five hundred parts of coagulated albumen.

LIQUID PEPSIN;

Standard Strength of U. S. PHARMACOPŒIA.

My make of Pepsin has stood the test of years. It has proven its superiority by **not being deteriorated by age,** and by **not losing its strength,** nor assuming an offensive odor when exposed to the air.

E. SCHEFFER, - Louisville, Ky.

DUSART'S

Syrup and Wine of Lacto-Phosphate of Lime

The properties of which are scientifically founded on physiological experiments, and have received the sanction of several years' successful trial by the French and English medical profession, as producing durable reconstituent effects in all cases of CACHEXIA or ADYNAMIA, when nutrition has been impaired by acute or chronic complaints.

As an article of diet, it acts as general excitant of all the nutritive functions, ensures digestion, brings back or increases the appetite, enriches the milk of the mother, and generally improves the vital energies. As a medicament, it is chiefly used in convalescence, teething, rickets, and imperfect growth, dyspepsia, various nervous diseases, wounds, fractures, and all complaints of the osseous system.

DUSART'S SYRUP OF LACTO-PHOSPHATE OF LIME AND IRON is a ferruginous medicament specially invaluable for the above cases, when complicated with anæmia.

Dusart's work on the "Physiological and Therapeutic Action of Phosphate of Lime" will be sent free to any physician on application to Messrs. E. Fougera & Co.

Paris: L. DUSART, 8 Rue Vivienne.

New York: E. FOUGERA & CO., Importing Pharmacists.

Pelletier's Capsules of Sulphate of Quinine

These Capsules, manufactured by MESSRS. ARMET DE LISLE & CO. (successors to Pelletier), contain ten centigrammes of Sulphate of Quinine, guaranteed by having the NAME PRINTED upon each Capsule. They dissolve quickly in cold water, do not become hard, like pills, and are taken more easily than wafers.

They are put up in bottles containing 10, 20, 100, 200, 500 and 1,000 Capsules.

Paris: 8 Rue Vivienne. **E. Fougera & Co., New York.**

CHAPOTEAUT'S PEARLS OF PURE PEPSINE.

The Pepsine used in the manufacture of these Pearls is made from the Stomachs of Sheep, and digests 90 times its weight of meat; it is put up in small soluble Capsules, which can be preserved indefinitely. Unlike all other known Pepsine it contains neither starch nor sugar of milk. Two Pearls taken after meals are sufficient to insure the digestion of food in fifteen minutes, and remove Headache, Sleepiness, etc., which are the usual accompaniments of indigestion.

Chapoteaut, Phar. Chemist, 8 Rue Vivienne, Paris.
E. Fougera & Co., 30 N. William Street, New York.

CHAPOTEAUT'S WINE OF PEPTONE.

The Peptone used in the preparation of this Wine is obtained by the action of Sheep Pepsine on Beef of the best quality. Being pure and neutral it is entirely assimilable, containing neither Glucose, Albumen nor Chloride of Sodium for this reason it is the only preparation used in the laboratory of M. Pasteur for the culture of microscopic liquids. Each wineglassful of CHAPOTEAUT'S WINE contains the Peptone of ten grammes of Beef, and has, besides, the digestive properties of Pepsine. It may be used for the following cases: Anæmia, Dyspepsia, Debility, Distaste of Food, Inaction of the Digestive Organs, Convalescence, Alimentation for Wet Nurses, Children and the Aged; Phthisis, Persons Weakened by Fever, Dysentery, and by patients having been operated upon for Cancerous Affections.

DOSE—One or two small wineglassfuls after meals.

DEPOTS :— Chapoteaut, 8 Rue Vivienne, Paris.
E. Fougera & Co., 30 N. William St., New York.

MIDY'S SANTAL

Midy's Essence of Santal is used with success in place of Copaiba and Cubebs, being harmless, even in large doses. No matter what the color or amount of the secretion may be, the discharges are reduced and relief is obtained in forty-eight hours. No unpleasant effect is caused by its use, such as diarrhœa, eructations or indigestion, and not giving to the urine any odor. In cases of Inflammation of the Bladder it acts rapidly, and in two or three days the bloody emission is suppressed; it is used with success in Chronic Catarrh, rendering the urine clear at once.

DEPOTS: Midy, Chemist, 110 Faubourg St., Honore, Paris.
E. Fougera & Co., 30 N. William Street, New York.

GRIMAULT & CO'S IODIZED SYRUP OF HORSE RADISH

The Syrup of Iodized Horse Radish is used in France on a large scale as a substitute for Cod Liver Oil. It is prepared from juices of anti-scorbutic plants. Each teaspoonful contains one and a half grains of Iodine so intimately combined as to be insensible to the action of starch.

Grimault & Co., Pharmacists, 8 Rue Vivienne, Paris.
E. Fougera & Co., New York.

SPECIFY (BATTLE) WHEN PRESCRIBING OUR PREPARATIONS.

BROMIDIA

THE HYPNOTIC.

FORMULA.—

Every Fluid drachm contains 15 grs. EACH of pure Chloral Hydrat. and purified Brom. Pot. and ⅛ gr. EACH of gen. Imp. ext. Cannabic Ind. and Hyoscyam.

DOSE.—

One-half to one fluid drachm in WATER or SYRUP every hour until sleep is produced.

INDICATIONS.—

Sleeplessness, Nervousness, Neuralgia, Headache, Convulsions, Colic, Mania, Epilepsy. Irritability, &c. In the restlessness and delirium of fevers, it is absolutely invaluable, It does not Lock Up the Secretions.

PAPINE

THE DE-NARCOTIZED OPIATE.

Papine is the Anodyne or pain-relieving principle of Opium, the Narcotic and Convulsive elements being eliminated. It has less tendency to cause Nausea, Vomiting, Constipation, &c.

INDICATIONS.—

Same as Opium or Morphia.

DOSE.—

ONE FLUID DRACHM represents the Anodyne principle of ⅛ grain of Morphia.

IODIA

THE ALTERATIVE AND UTERINE TONIC.

FORMULA.—

Iodia is combination of Active Principles obtained from the Green Roots of Stillingia, Helonias, Saxifraga, Menispermum and Aromatics. Each fluid drachm also contains five grains Iod.-Potas. and three grains Phos. Iron.

DOSE.—

One or two fluid drachms (more or less as indicated) three times a day, before meals.

INDICATIONS.—

Syphilitic, Scrofulous and Cutaneous Diseases, Dysmenorrhea, Menorrhagia, Leucorrhea, Amenorrhea, Impaired Vitality, Habitual Abortion and General Uterine Debility.

BATTLE & CO.,

(CHEMISTS' CORPORATION.)

ST. LOUIS, - - - - MISSOURI.

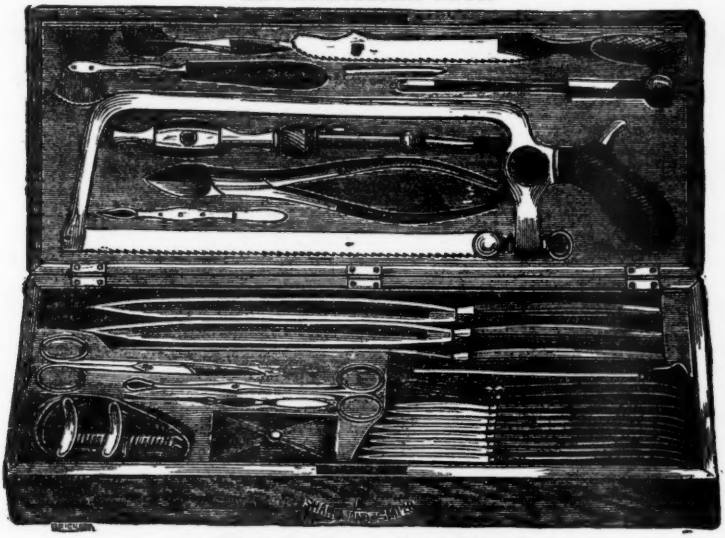
BRANCHES: { 76 New Bond Street, London, W.
Rue de la Paix, Paris.
9 and 10 Dalhousie Square, Calcutta.

SPECIFY (BATTLE) WHEN PRESCRIBING OUR PREPARATIONS

SURGICAL .·. INSTRUMENTS, .·. ETC

LARGEST SURGICAL INSTRUMENT HOUSE IN THE WEST

ESTABLISHED 1844.



SHARP & SMITH,

Manufacturers, Importers and Wholesale and Retail Dealers in

SURGICAL INSTRUMENTS,

Apparatus for Deformities, Galvanic Batteries, Elastic Stockings, Trusses, Abdominal Supporters, Hypodermic Syringes, Fever Thermometers, Surgeons' and Invalids' Chairs. Instruments and Batteries repaired. Price List sent on application.

73 Randolph Street, - - - CHICAGO.

Elementary Principles of Electro-Therapeutics,

WITH 135 ILLUSTRATIONS, PREPARED BY C. M. HAYNES, M.D.

DESIGNED FOR THE USE OF STUDENTS AND PHYSICIANS.

This volume of 420 pages contains a resume of the Elementary Principles of MAGNETISM, FRANKLINISM, GALVANISM, FARADISM.

It is especially adapted to those who are about introducing Electricity into their practice, as well as to those who have given its scientific application little or no consideration. It will be found of practical value to

THE STUDENT who wishes to commence at the beginning and master the FOUNDATION PRINCIPLES of medical electrical science before attempting to become acquainted with the theories and elaborate investigations of the founders of this science.

THE BUSY PRACTITIONER who wishes to get at the practical facts of medical electricity without being compelled to search for them through a mass of material which, however interesting and valuable, is not absolutely essential to an understanding of the subject.

THE ELECTRO-THERAPEUTIST who wishes to review half-forgotten facts, and also keep posted in regard to the latest literature on the subject of this specialty.

LIST OF CONTENTS: Suggestions in regard to the selections and care of batteries; The different forms of electricity compared: (*a*) according to their physiological effects, (*b*) according to their therapeutical effects; Differential indications for the selection of current; Electro diagnosis of obscure diseases; Resuscitation of those in a state of asphyxia from anæsthetics, drowning, etc., or in new-born infants; To distinguish between real and apparent death; Detection of malingerers by electricity; Diagnosis and prognosis in various forms of paralysis; Location of the motor points of the body through which any single muscle or group of muscles may be stimulated to contract, illustrated; Illustration of nerve centers and mode of treating the various organs of the body through them; "Landmarks" for locating the various organs in the living body, illustrated, with directions for conveying electricity directly to them; Influence of galvanism on the sensory nerves, the motor nerves, the vaso-motor nerves, the dilator nerves; Electrolysis of tumors, nævi, strictures, etc.; Electrolysis for the permanent removal of hair from the eyelids or other situations, illustrated; Electro-thermal baths, the method of giving them and the apparatus required, illustrated; Complete and definite directions, collected from the best American and European authors, for the treatment of all diseases to which electricity has been successfully applied; Galvano-Cautery, its history, advantages and method of employing it; A full Vocabulary of Electrical Language, containing all the terms which are employed in medical literature, defined according to the revision of the Electrical Congress assembled at Paris in 1881. **Price, $2.00 net.**

THE CLARK & LONGLEY COMPANY, Publishers,

308 to 316 Dearborn Street, - - CHICAGO.

DURING THE WINTER

Nearly every physician has patients daily where Cod Liver Oil and Hypophosphites are indicated. To all such, who are not using

SCOTT'S EMULSION

OF PURE NORWEGIAN

COD LIVER OIL

WITH

HYPOPHOSPHITES OF LIME AND SODA,

We would be pleased to have them send to us for a sample, which we will gladly deliver by express or post paid. SCOTT'S EMULSION is nearly as palatable as Milk, and will not separate or change; thus each dose is alike.

FORMULA: 50% of Pure Cod Liver Oil. 6 Grains Hypophosphites of Lime. 3 Grains Hypophosphites of Soda, to a Fluid Ounce.

SCOTT & BOWNE, Mfg. Chemists,

132 and 134 South Fifth Ave., New York City.

DR. RABUTEAU'S

(*Laureate of the Institute of France.*)

DRAGEES, ELIXIR, AND SYRUP OF IRON.

"The experiments made in the hospitals of Paris have demonstrated that DR. RABUTEAU'S DRAGEE'S, ELIXIR AND SYRUP regenerates the red globules of the blood with a rapidity never observed with the use of the other ferruginous preparations. These results have been proved by the various COMPT-GLOBULES.

"The ferruginous preparations of DR. RABUTEAU do not cause any constipation, and are perfectly tolerated by the weakest persons."—*Gazette des Hopitaux.*

DR. RABUTEAU'S ELIXIR is prescribed when some difficulty is experienced in swallowing the Dragees; it is especially adapted to weak persons, whose digestive functions need strengthening or stimulating.

DR. RABUTEAU'S SYRUP is especially prepared for children, who take it readily because of its agreeable taste.

A sample of Rabuteau's Dragees will be sent free to any Physician mentioning THE JOURNAL AND EXAMINER.

Prepared by CLIN & CO., Pharmacists, Paris. **E. FOUGERA & CO., Agents for the United States.**

KIRKWOOD'S INHALER

This is the only complete, reliable, and effective inhaler in use, arranged for the direct application of Muriate of Ammonia and other remedial Agents in the state of vapor to the diseased parts of the air passages in the treatment of catarrh and diseases of the throat and lungs. No heat or warm liquids required in its use.

It is entirely different from the various frail, cheap instruments that have been introduced.

KIRKWOOD'S INHALER is accompanied by testimonials of the highest professional character, together with carefully prepared formulas for use.

Retail Price, complete, $5.00; Small Size, $2.50.

☞ A liberal discount allowed to the trade and profession.

☞ For descriptive pamphlets, or other information, address

E. FOUGERA & CO., 30 N. William St., New York.

RIGOLLOT'S MUSTARD PAPER.

Is one of the most important and useful discoveries of the age, but it is not (as certain dealers of bad faith pretend) a preparation that any one can make, for it is not manufactured with a mustard that every one can buy.

RIGOLLOT'S MUSTARD PAPER

Is the invention of Mr. P. RIGOLLOT, who is the exclusive owner; it is the only preparation which has been adopted by the civil and military hospitals, and the armies and navies of France and England, and which has obtained a medal at the Centennial Exposition at Philadelphia. All other mustard plasters or leaves of whatever name, are but imitations af the original

RIGOLLOT'S MUSTARD PAPER.

Physicians will find it the most reliable sinapism, prompt and certain in its action, and will therefore always prescribe it. Every sheet, in order to be genuine must bear the annexed signature of the inventor,

Sold in tin boxes containing 10 sheets, also 25 and 100 sheets, by all respectable chemists throughout the world.

TANRET'S PELLETIERINE.

FOR THE TREATMENT OF TAPE-WORM (TÆNIA SOLIUM).

This New Tanifuge, the Active Alkaloid of Pomegranate Bark, has of late come into extensive use in France for the treatment of Tape-Worm (Tænia Solium). The results of numerous experiments with it at the Marine Hospitals of Toulon, St. Mandrier, etc., and in the Hospitals of Paris, St. Antoine, LaCharité, Necker, Beaujon, etc., have all been most satisfactory, Dr. Dujardin Beaumetz, member of the Academy of Medicine, and Prof. Laboulbene, in their report to the Society of Therapeutics, have given it their unqualified approval after the most searching experiments. This preparation is pleasant to administer, and if certain preliminaries are observed, success will be assured. Sold only in bottles containing one dose.

TANRET'S ERGOTININE.

ALKALOID AND ACTIVE PRINCIPLE OF SPURRED RYE.

This is a well defined Alkaloid that must not be confounded with Ergotinine or other extracts.

It is given in doses of from ¼ to ½ milligramme ($\frac{1}{120}$th to $\frac{1}{120}$th of a grain) in all cases where Ergot is indicated, viz.: Flooding, Post-partem Hæmorrhages, Metrorrhagia, etc., etc.,

It is put up in the following forms:

SYRUP, containing ¼ milligramme to each teaspoonful; DOSE, from one to six teaspoonfuls per day.

SOLUTION, for hypodermic purposes, containing 1 milligramme to each cubic centimeter; DOSE, from 3 to 10 drops.

The Institute of France has awarded one of its prizes to Mr. Chas. Tanret for the discovery of these Alkaloids.

Tanret's Pelletierine and Ergotinine are only prepared by Mr. Chas. Tanret, Laureate of the Institute of France, 64 Rue de Rempart, Paris.

E. FOUGERA & CO., Sole Agents for United States.

30 North William Street, New York.

Pamphlets on Pelletierine and Ergotinine sent on application.

PHARMACAL ∴ PREPARATIONS.

THE BEST

ANTI-SEPTIC

For Internal and External Use.

LAMBERT'S

LISTERINE

Antiseptic, Prophylactic, Disinfectant, Non-Toxic, Non-Irritant, Non-Escharotic, Absolutely Safe, Agreeable, Scientific, and Strictly Professional,

And equally adapted to internal use and the surgical treatment of all parts of the human body, whether by spray, irrigation, or simple local application.

Listerine comes nearer to an Ideal Antiseptic than any preparation ever presented to the Medical World.

Send for new Formula Book and General Reports establishing its value.

EXTERNALLY IN Surgery, Obstetrics, Gynæcology, Leucorrhœa, Gonorrhœa, and all Mucous Membrane Catarrhs.

INTERNALLY IN Typhoid and other Fevers, Zymotic Diseases, Diphtheria, Scarlet Fever, Dyspepsia, Dysentery, Diarrhœa, all forms of Cholera, and as a general Prophylactic.

THE BEST

ANTI-LITHIC

For the Uric Acid Diathesis.

LITHIATED

HYDRANGEA

Kidney Alterative and Antilithic.

Reliable, Uniform and Definite.

THE solution and elimination of an excess of uric acid and urates are best attained by an intelligent combination of certain forms of Lithia and a Kidney Alterative.

The ascertained value of Hydrangea in Calculus Complaints and Abnormal Conditions of the Kidneys through the earlier reports of Drs. Atlee, Horsley, Monkur, Butler, and others, and the well-known utility of Lithia in the diseases of the uric acid diathesis, *at once* justified the therapeutic claims for

Lambert's Lithiated Hydrangea

when first announced to the Medical Profession, and it is now regarded by Physicians as the best and most soothing Kidney Alterative and Antilithic Agent yet known in the treatment of Urinary Calculus, Diabetes, Gout, Cystitis, Rheumatism, Hæmaturia, Bright's Disease, Albuminuria, and Vesical Irritations generally.

Formula and Reports upon Request.

LAMBERT PHARMACAL CO., - - 116 OLIVE ST., - - ST. LOUIS.

WHEELER'S TISSUE PHOSPHATES.

Bone-Calcium Phosphate, Ca3 2 PO4, Sodium Phosphate Na2 HPO4, Ferrous Phosphate Fe3 2 PO4, Trihydrogen Phosphate H3 PO4.

Wheeler's Compound Elixir of Phosphates and Calisaya. A Nerve Food and Nutritive Tonic, for the treatment of Consumption, Bronchitis, Scrofula, and all forms of Nervous Debility.

The Lactophosphates prepared from the formula of Prof. Dusart, of the University of Paris, combine with a superior Permatin, Sherry Wine and Aromatics in an agreeable cordial, easily assimilable and acceptable to the most irritable stomachs.

Medium medicinal doses of Phosphorus, the oxydizing element of the Nerve Centers for the generation of Nerve Force; Lime Phosphate, an agent of Cell Development and Nutrition; Soda Phosphate, an excitant of Functional activity of Liver and Pancreas, and Corrective of Acid Fermentation in the Alimentary Canal; Iron, the Oxydizing Constituent of the Blood for the generation of Heat and Motion; Phosphoric Acid, Tonic in Sexual Debility; Alkaloids of Calisaya, Anti-Malarial and Febrifuge; Extract of Wild Cherry, uniting with tonic power the property of calming Irritation and diminishing Nervous Excitement.

The Superiority of the ELIXIR consists in uniting with the Phosphates the special properties of the Cinchona and Prunus, of Subduing Fever and Allaying Irritation of the Mucous Membrane of the Alimentary Canal, which adapts it to the successful treatment of Stomach Derangements and all Faulty Nutrition, the outcome of Indigestion, Malassimilation of Food, and failure of supply of these essential elements of Nerve Food and Tissue Repair.

The special indication of this combination of Phosphates in Spinal Affections, Caries, Necrosis, Ununited Fractures, Marasmus, Poorly Developed Children, Retarded Dentition, Alcohol, Opium, Tobacco Habits, Gestation and Lactation to promote Development, etc., and a physiological restorative in Sexual Debility, and all used-up conditions of the Nervous System, should receive the careful attention of good therapeutics.

There is no strychnia in this preparation, but when indicated, the Liquor Strychniæ of the U. S. Dispensatory may be added, each fluid drachm of the solution to a bottle of the Elixir, making the 64th of a grain to half a fluid ounce, an ordinary dose, a combination of a wide range of usefullness, especially in Dyspeptic Troubles with Constipation, in Nervous Debility, and in Chronic Malaria.

Dose.—For an adult, one tablespoonful three times a day, after eating; from seven to twelve years of age, one dessertspoonful; from two to seven, one teaspoonful. For infants, from five to twenty drops, according to age. Prepared at the Chemical Laboratory of

T. B. WHEELER, M. D., Montreal, D. C.

Please mention this Journal. Put up in pound bottles and sold by all Druggists at One Dollar.

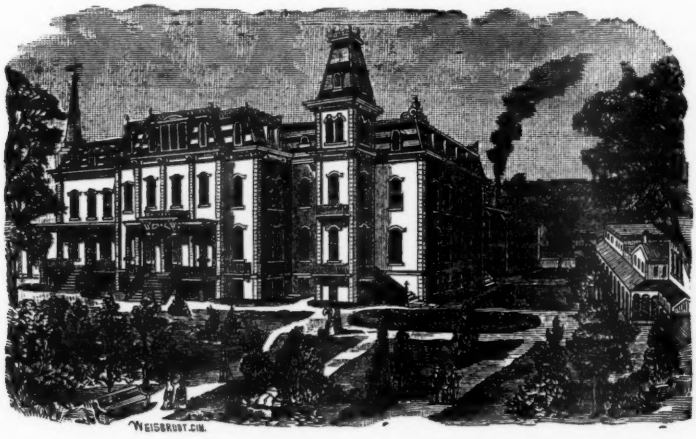
NOW READY.

THE CHICAGO TRIBUNE DICTIONARY

Containing over 32,000 words and phrases, and consisting of over 300 pages. Sent postpaid on receipt of price, **25 cents.** Address

THE CLARK & LONGLEY CO., Publishers,
308 Dearborn Street, CHICAGO.

CINCINNATI × SANITARIUM.



A PRIVATE HOSPITAL FOR THE INSANE.

(PROPRIETARY INTEREST STRICTLY NON-PROFESSIONAL.)

COLLEGE HILL, OHIO.

Fourteen years Successful operation. One Hundred and fifty Patients admitted annually. Daily Average Sixty. Cottages for Nervous Invalids, Opium Habit, etc. Location Salubrious. Surroundings Delightful.

APPLIANCES AMPLE. CHARGES REASONABLE.

Accessible by Rail; 6 trains Daily; 40 minutes from C. H. & D. Depot, 5th and Hoadley Sts., Cincinnati.

For Particulars, address, **ORPHEUS EVERTS, M. D., Supt., College Hill, Ohio.**

Chicago Hospital for Women and Children.

NEW, COMMODIOUS, LIGHT AND AIRY.

Sanitary Surroundings and Appliances of the Highest Order.

WILL ACCOMMODATE **80** OR MORE PATIENTS.

Ward, $5.00 per week. Private rooms, sixteen elegantly furnished, $10.00 to 30.00 per week, according to attendance of nurses.

A Training School, for the training of nurses, is a desirable feature of the institution. For hospital reports and other information, address,

HOUSE PHYSICIAN,

CHICAGO HOSPITAL FOR WOMEN AND CHILDREN.

Cor. Adams and Paulina Sts.,

CHICAGO, ILL.

DR. MARY H. THOMPSON, Head Surgeon and Gynæcologist.

MRS. J. C. HILTON, President Board of Managers.

PHARMACAL ∴ PREPARATIONS.

SAVORY & MOORE

Beg to call the attention of the Profession to some of their Special Preparations, the purity and uniform strength of which are guaranteed.

PANCREATIC EMULSION

PREPARED IN ACCORDANCE WITH THE DIRECTION OF THE PHYSICIAN WHO INTRODUCED THIS PURELY

MEDICINAL FOOD FOR CONSUMPTION AND WASTING DISEASE.

PANCREATIC EMULSION will take precedence of Cod Liver Oil by reason of its introducing the STABLE SOLID FATS INTO THE SYSTEM instead of the evanescent fluid fats or oils.

Neither Cod Liver Oil nor EMULSIONS OF COD LIVER OIL can supply the kind of fat necessary for sound and vigorous human life. In addition to this, all the Oily Emulsions are liable to rancidity, and most of them are highly objectionable in consequence of the SAPONIFICATION and ULTIMATE PUTREFACTION produced by the chemical agents used instead of Pancreatic Juice.

PANCREATIC EMULSION (properly so-called), is THE NECESSARY FOOD OF THE CONSUMPTIVE, and the most reliable form of nutriment for counteracting the tendency to Phthisis and other wasting diseases. It presents to the lacteals fat in essentially the same condition for assimilation and absorption as in a vigorous human frame, and THE AGENT of the important change is THE NATURAL SECRETION OF THE PANCREAS.

PANCREATIC EMULSION may therefore be regarded as Chyle obtained by nature's own process. In certain cases both Cod Liver Oil and Pancreatic Emulsion are required—one to supply the blood with oil or liquid fat, the other with the more stable solid fats; but it cannot be too strongly urged that both Pancreatic Emulsion and Cod Liver Oil are NOT TO BE REGARDED AS MEDICINES, BUT AS ARTICLES OF DIET, without which patients, with their defects of health will as surely starve as healthy persons would if deprived of the most nutritive part of their food.

PANCREATINE effects the digestion and assimilation of Cod Liver Oil and fat: as well as food generally. This palatable and popular remedy is invaluable to PATIENTS WHO ARE UNABLE TO DIGEST COD LIVER OIL, and who are deprived of its nourishing and invigorating properties.

PANCREATINE WINE. An excellent vehicle for taking Cod Liver Oil and promoting the digestion of it

AS SUPPLIED TO

THE ROYAL NURSERIES

Of England, Russia, Etc.

AND CONTAINING THE

HIGHEST AMOUNT OF NOURISHMENT

IN THE

Most Digestible and Convenient Form.

THE MOST PERFECT SUBSTITUTE FOR HEALTHY MOTHER'S MILK.

DATURA TATULA, FOR ASTHMA, ETC.

A Powerful and Universally Adopted Remedy.

"By immediate contact with the air cells and passages, instant relief is given."—DR. LATHAM, *Physician to the Queen.*

"A remedy of great power and usefulness in Asthma, Chronic Bronchitis, &c."—DR. W. BAKER.

"The smoke causes no nausea. I have never known an instance in which relief was not obtained."—GENERAL ALEXANDER.

In Tins, for use by means of a Pipe, Cigars and Cigarettes, and Pastiles for Inhalation.

SAVORY & MOORE, 143 New Bond Street, London.

Agents for America, E. FOUGERA & CO., New York.

Sessions of 1887-88. **Bellevue Hospital Medical College.** City of New York.

The REGULAR SESSION begins on Wednesday, September 21, 1887, and ends about the middle of March, 1888. During this session, in addition to the regular didactic lectures, two or three hours are daily allotted to clinical instruction. Attendance upon at least two regular courses of lectures is required for graduation.

The SPRING SESSION consists of recitations, clinical lectures and exercises, and didactic lectures on special subjects. This session begins about the middle of March and continues until the middle of June. During this Session, daily recitations in all the departments are held by a corps of Examiners appointed by the Faculty.

The CARNEGIE LABORATORY is open during the collegiate year, for instruction in microscopical examinations of urine, practical demonstrations in medical and surgical pathology, and lessons in normal histology and pathology, including bacteriology.

For the Annual Circular and Catalogue, giving requirements for graduation and other information, address PROF. AUSTIN FLINT, Secretary Bellevue Hospital Medical College, foot of East 26th Street, New York City.

DUCRO'S

ALIMENTARY ELIXIR,

A COMBINATION UNITING THE PROPERTIES OF

ALCOHOLIC STIMULANTS AND RAW MEATS.

This preparation, which has been used with great success in the Hospitals of Paris, since 1868, is adapted to the treatment of all diseases requiring the administration, in a small volume, of a tonic able to stimulate and support the vital forces, as PULMONARY PHTHISIS, DEPRESSION AND NERVOUS DEBILITY, ADYNAMIA, MALARIOUS CACHEXIA, ETC.

PREPARED BY EMILE DURIEZ & CO., SUCCESSORS TO DUCRO & CIE., PARIS.

BLANCARD'S PILLS.

OF UNCHANGEABLE IODIDE OF IRON.

Blancard's Pills of Iodide of Iron are so scrupulously prepared, and so well made, that none other have acquired a so well deserved favor among physicians and pharmacists. Each pill, containing one grain of proto-iodide of iron, is covered with finely pulverized iron, and covered with Balsam of Tolu.

Dose, 2 to 6 Pills a Day.

The genuine have a RELACTIVE SILVER SEAL attached to the lower part of the cork, and a green label on the wrapper, bearing the facsimile of the signature of

BLANCARD,

Pharmacien,
No. 40 Rue Bonaparte.
PARIS,
without which none are genuine.

☞ *BEWARE OF IMITATIONS.*

AGENTS FOR THE UNITED STATES, E. FOUGERA & CO., NEW YORK.

Take Only and Insist on "The Best of American Manufacture."

PLANTEN'S CAPSULES.

Known as Reliable over 50 Years, and for "Gen'l Excellence in Manufacture."

ESTABLISHED 1836.

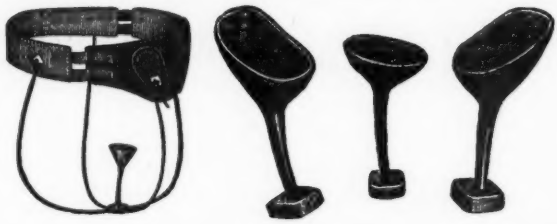
H. PLANTEN & SON, 224 WILLIAM STREET, NEW YORK.

HARD AND SOFT ELASTIC. 9 Sizes: 3, 5, 10 and 15 Minims, and 1, 2½, 5, 10 and 15 Grammes. **ALL KINDS FILLED.**

EMPTY, for Powders, 8 sizes. " " Liquids, 3 " — CAPSULES, *TRIAL BOX, 25 CTS.* — VAGINAL, - 6 sizes. RECTAL, - 3 "

Horse Ball, 6 Sizes, and Capsules for Mechanical Purposes.

Samples Sent Free. ● Specify PLANTEN'S on all Orders. ● Sold by all Druggists.



Dr. McINTOSH'S UTERINE SUPPORTER.

No Instrument has ever been placed before the Medical Profession which has given such Universal Satisfaction.

EVERY INDICATION OF UTERINE DISPLACEMENTS is met by this combination; Prolapsus, Anteversion, Retroversion and Flexions are overcome by this instrument, when others fail. This is proven by the fact that since its introduction to the Profession it has come into more general use than all other instruments combined.

UNION OF EXTERNAL AND INTERNAL SUPPORT.—The abdomen is held up by the broad morocco leather belt with concave front and elastic straps to buckle around the hips. The Uterine Support is a cup and stem made of highly polished hard rubber, very light and durable, shaped to fit the neck of the womb, with opening for the secretions to pass out, as shown by the cut. Cups are made with extended lips to correct flexions and versions of the womb.

ADAPTABILITY TO VARYING POSITIONS OF THE BODY.—The cup and stem are suspended from the belt by two soft elastic Rubber Tubes, which are fastened to the front of the belt by simple loops, pass down and through the stem of the cup and up to the back of the belt. These soft rubber tubes, being elastic, adapt themselves to all the varying positions of the body, and perform the service of the ligaments of the womb.

SELF-ADJUSTING.—One of the many reasons which recommend this Supporter to the Physician is that it is self-adjusting. The Physician, after applying it, need have no fear that he will be called in haste to remove or readjust it (as is often the case with rings and various pessaries held in position by pressure against the vaginal wall), as the patient can remove it at will, and replace it without assistance.

It can be worn at all times, will not interfere with nature's necessities, will not corrode, and is lighter than metal. It will answer for all cases of Anteversion, Retroversion, or any Flexion of the womb, and is used by the leading Physicians with unfailing success, even in the most difficult cases.

Our Reduced Price to Physicians is $5.00; to Patients, $10.00.

Instruments sent by mail at our risk, on receipt of price; or we can send by express, C. O. D., and collect return express on the money.

CAUTION.—We call particular attention of Physicians to the fact that unscrupulous parties are manufacturing a worthless imitation of this supporter, and some dishonest dealers, for the sake of gain, are trying to sell them, knowing they are deceiving both Physician and patient.

PERSONS RECEIVING A SUPPORTER will find, if it is genuine, the directions pasted in the cover of the box, with the headline, "DR. L. D. McINTOSH'S UTERINE SUPPORTER"; a cut on the right, showing the Supporter, and on the left its application, also the fac simile signature of DR. L. D. McINTOSH. Each pad of the abdominal belt is stamped in gilt letters, DR. McINTOSH'S UTERINE SUPPORTER CO., CHICAGO, ILL. Each box also contains our pamphlet on "DISPLACEMENTS OF THE WOMB," and an extra pair of RUBBER TUBES.

DR. McINTOSH UTERINE SUPPORTER CO.,

300 Dearborn Street. Chicago, Ill.

Our valuable pamphlet, "Some Practical Facts about Displacements of the Womb," will be sent you on application.

Volume LV.] DECEMBER, 1887. [Number 6.

The CHICAGO MEDICAL JOURNAL AND EXAMINER

EDITOR
S. J. JONES, M.D., LL.D

COLLABORATORS:

CHICAGO:

PROFESSOR S. ANDREWS, M.D., LL.D.
PROFESSOR J. BARTLETT, M.D.
PROFESSOR W. T. BELFIELD, M.D.
PROFESSOR F. BILLINGS, M.D.
PROFESSOR W. H. BYFORD, A.M., M.D.
PROFESSOR L. CURTIS, A.M., M.D.
PROFESSOR N. S. DAVIS, Jr., A.M., M.D.
PROFESSOR O. C. DEWOLF, A.M., M.D.
PROFESSOR E. C. DUDLEY, A.B., M.D.
PROFESSOR C. FENGER, M.D.
PROFESSOR J. N. HYDE, A.M., M.D.
PROFESSOR E. F. INGALS, A.M., M.D.
PROFESSOR W. W. JAGGARD, A.M., M.D.
PROFESSOR F. S. JOHNSON, A.M., M.D.
PROFESSOR H. A. JOHNSON, M.D., LL.D.
PROFESSOR C. W. PURDY, M.D.
PROFESSOR C. G. SMITH, A.M., M.D.
PROFESSOR E. WING, A.M., M.D.

MILWAUKEE, WIS.
PROFESSOR N. SENN, M.D.

WASHINGTON, D. C.
S. O. RICHEY, M.D.

UNITED STATES ARMY
SURGEON D. L. HUNTINGTON, M.D.

MARINE HOSPITAL SERVICE
SURGEON S. T. ARMSTRONG, M.D.

UNITED STATES NAVY
MEDICAL DIRECTOR J. M. BROWNE, M.D.
MEDICAL DIRECTOR A. L. GIHON, A.M., M.D.

THE CLARK & LONGLEY CO., CHICAGO,
PUBLISHERS

Entered at the Post Office at Chicago, for transmission through the mails as second class matter.

THE most effective diet (*not medicine*) the Medical Profession can use in contending with Cholera Infantum, Dysentery, and all intestinal complaints, is

NESTLÉ'S MILK FOOD.

It is the most suitable, safe and nourishing diet when the above-named ailments threaten infant life. We quote again from Ziemssen's Cyclopædia, vol. 7, on the treatment of Cholera Infantum: "WHEN THE MOTHER'S MILK IS INSUFFICIENT, NESTLE'S MILK FOOD IS ALONE TO BE RECOMMENDED."

The above quotation is about as strong and emphatic as the English language will permit, and we add thereto, that if physicians will order infants under their care to use Nestlé's Food as a diet during hot weather, in connection with medical treatment, they will win in the fight with summer complaints.

Since we published the above, and other important testimony, three years ago, commending Nestlé's Food, several proprietors of infant foods have felt that they also must say something about Cholera Infantum, or go to the wall.

Notwithstanding all, Nestlé's Food is the physician's sheet-anchor during the heated term.

Pamphlet by Prof. Lebert, giving full information, and sample sent on application to

THOMAS LEEMING & CO., Sole Agents, NEW YORK.

NOTE:—No milk is required in preparing Nestlé's Food; only water used.

SUCCUS ALTERANS

(McDADE.)

SUCCUS ALTERANS is a purely vegetable compound of the preserved juices of Stillingia Sylvatica, Lappa Minor, Phytolacca Decandra, Smilax, Sarsaparilla and Xanthoxylum Fraxineum, as collected by DR. GEO. W. MCDADE exclusively for ELI LILLY & CO., and endorsed by DR. J. MARION SIMS.

SUCCUS ALTERANS continues to gain favor from its remarkable Alterative and Tonic properties, *eliminating specific poison from the blood* and *increasing the proportion of red corpuscles in anæmic patients* to a wonderful degree.

SUCCUS ALTERANS in venereal and cutaneous diseases is fast supplanting Mercury, the Iodides and Arsenic; and is a certain remedy for Mercurialization, Iodism and the dreadful effects often following the use of Arsenic in skin diseases.

SUCCUS ALTERANS is also strongly recommended for its Tonic and Alterative effects in the myriad forms of scrofulous disease, and in all cases where anæmia is a factor. Such patients rapidly develop a good appetite, sleep soundly and gain flesh rapidly. Many cases are on record where patients increased ten to twenty-five pounds in weight in a few weeks.

SUCCUS ALTERANS may be given for any length of time without injury to the patient.

SUGGUS ALTERANS is now indorsed by leading members of the medical profession and in use by many hospitals of note.

SUCCUS ALTERANS is put up only in round amber bottles holding sixteen fluid ounces, which is sufficient for from two to six weeks' treatment.

ANY PHYSICIAN who has not received DR. MCDADE'S latest publication, the MONOGRAPHIA SYPHILITICA for JANUARY, 1887, should send his address, mentioning this journal, and we will mail a copy. It contains a paper, illustrated with colored plates, by DR. D. H. GOODWILLIE, of New York, on the "Sequelæ of Syphilis," reports of cases in practice, and many other valuable papers.

SUCCUS ALTERANS is supplied by reputable wholesale and retail druggists everywhere. Agency for Great Britain, etc., JOHN M. RICHARDS, 46 HOLBORN VIADUCT, LONDON, E. C.

ELI LILLY & CO., PHARMACEUTICAL CHEMISTS, INDIANAPOLIS, INDIANA, U. S. A.

McINTOSH GALVANIC AND FARADIC BATTERY CO.

MANUFACTURERS OF THE CELEBRATED

McIntosh Combined Galvanic and Faradic Batteries

Table, Office and Family Batteries, Electrodes, Electric Bath Apparatus, Statical Electric Machines, Stereopticons and Microscopes

AND ALL KINDS OF

PHILOSOPHICAL + ELECTRICAL + APPARATUS.

Schools, Colleges, Physicians or Hospitals wanting new Apparatus, will do well to favor us with correspondence and obtain estimates.

We would call the Special Attention of the Medical Profession to our

COMBINED GALVANIC AND FARADIC BATTERIES

These Batteries have been adopted by the United States Government for use in Medical department of the Army and Navy. They are

The First and Only

PORTABLE BATTERIES

ever invented which give both the

GALVANIC and FARADIC CURRENT.

TWO DISTINCT BATTERIES IN ONE CASE.

No Physician can afford to be without one.

This celebrated Battery is constructed on an improved plan. The zincs and carbons are fastened to hard rubber plates in sections of six each. The cells are composed of one piece of hard rubber, and are made in sections of six each, with a drip-cup; thus one section can be handled, emptied and cleaned as easily and quickly as one cell. The drip-cup is to receive the elements when the battery is not in use. The fluid cannot spill or run between the cells, and there is no danger of breaking as with glass cells. This is the only battery in which the zinc and carbon plates can be kept clean and always in order by simply rinsing them.

An extra large cell (with a zinc and carbon element) is added to the combined batteries for the purpose of producing the Faradic current. This cell gives as much force as is ever needed, and avoids exhausting the current from the galvanic cells. All the metal work is finely nickel-plated and highly polished, and every part is put together so that it can be easily replaced by the operator. Our batteries weigh less, occupy less space, give a current of greater intensity and quantity than any other battery manufactured.

Our Illustrated Catalogue, a handsome book giving full description of all our goods, and other valuable information, sent free on application.

McINTOSH GALVANIC & FARADIC BATTERY CO.,

300 AND 302 DEARBORN STREET, CHICAGO, ILL.

COCA CORDIAL

A Palatable Preparation

—OF—

Coca Erythroxylon

CONTAINING

In an agreeable vehicle the active medicinal principle, free from the bitter astringent constituents of the drug.

THE SEDATIVE, tonic and stimulant effects of coca erythroxylon and its preparations, and their wide application in medical practice are now too well known to the medical profession to need extended comment.

Coca has been extensively used with gratifying success for the relief of morbid conditions depending on nervous exhaustion, in the nervous irritability following excesses of any kind, in neurasthenia, to facilitate digestion in dyspepsia, to relieve the morbid depression of spirits resulting from exhausting mental labor, in nausea and vomiting of reflex origin, and in the treatment of the alcohol and opium habits.

In a great variety of affections it has proved itself to be a drug ranking in therapeutic importance with opium and quinine.

☞We shall be pleased to send on application a circular more fully descriptive of Coca Cordial and its application, and we trust physicians will communicate to us the results of their experience in the use of this preparation, so far as it is likely to be of general interest to the profession.

PARKE, DAVIS & CO.

MANUFACTURING CHEMISTS

60 Maiden Lane, 21 Liberty Street, New York.. DETROIT, MICH.

PEPTOGENIC MILK POWDER

For the preparation of "Humanized Milk"—an equivalent for Normal Mother's Milk, which accurately supplies every Chemical and Physiological requirement.

The Peptogenic Milk Powder is formulated from the most modern and correct standpoint—upon the basis of exact chemical and physiological investigations, with the express object of so modifying cows' milk as to render it human like in character.

All authorities agree that animal milk is the only rational substitute—that of the cow the best—for human milk, and that to change its caseine into a properly digestible form, and to adjust all the constituents to the standard of human milk, are the essential requirements for the successful adaptation as a food for bottle-fed infants.

By means of this digestive powder, with the very simple and practical process originated and perfected by us, the caseine of cows' milk is modified and predigested, and other essential components so supplied as to yield a product almost identical in physiological, chemical and physical properties with human milk.

The Peptogenic Milk Powder is the special means of applying the peptonizing process in infant feeding.

PEPTOGENIC MILK POWDER CONTAINS NO STARCH, NO CEREAL SUBSTANCE, NO CANE SUGAR, NO MALT SUGAR NO GLUCOSE.

Sold in cans, at 50 cents and $1.00 retail. Full directions accompany each package.

ORIGINATED AND MADE SOLELY BY

FAIRCHILD BROS. & FOSTER,

NEW YORK.

Descriptive Pamphlets sent gratis upon application, also pamphlet describing the composition of "infant foods" and the various methods of preparing substitutes for mother's milk.